

Mini contactors, relays, contactors

Continual operational availability requires a high operational reliability from the devices used. DILM contactors not only have the best lifespan values for standard AC-3 but are also exceptionally suited for the heavier AC-4 inching duty. Therefore the safety of the machine is increased also during the set up and changeover phases.

AC and DC contactor system xStart

Relays and contactors up to 170 A AC 3 at 400 V

- Identical frame sizes for AC and DC operated contactors simplify the engineering
- Minimised heat dissipation allow a higher packing density in the control panel
- Higher wiring safety due to double box terminals
- Less intermediate relays because contactors up to 32 A can be directly actuated from the PLC
- Simplified engineering due to integrated suppressors in the DC operated contactors

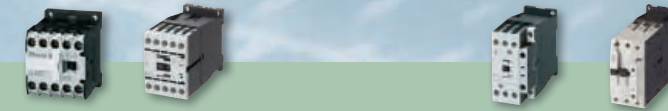
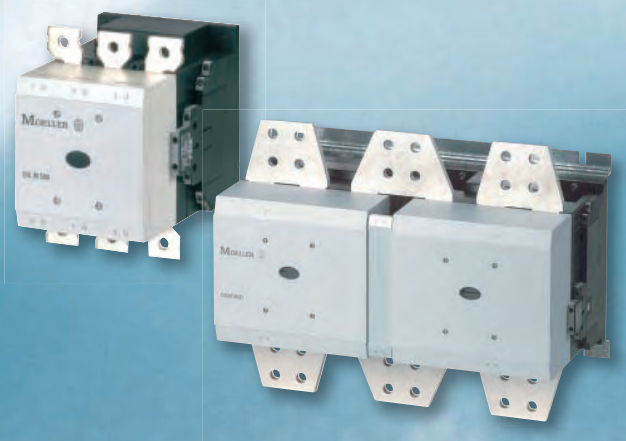
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High rated contactors

- Contactors up to 1600 A AC-3 at 400 V, Contactors up to 2000 A AC-1
- Smaller size and higher lifespan due to vacuum technology from 580 A
 - Direct actuation from PLC saves intermediate relays
 - Simple engineering due to wide-range coils
 - Minimised heat dissipation reduces costs for the control panel ventilation

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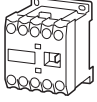
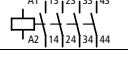
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DILER, DILEM

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Connection technique	Rated operational current		Conventional thermal current	Contacts		Distinctive number	Contact sequence
	AC-15			N/O = Normally open	N/C = Normally closed		
	220 V	380 V					
	230 V	400 V					
	240 V	415 V					
	I_e	e	I_{th}				
	A	A	A				

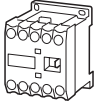


DILER mini contactor relay							
		6	3	10	4 N/O	40 E	
					3 N/O	1 N/C	31E
					2 N/O	2 N/C	22E

With DC operation:
integrated diode-resistor combination, coil rating 2.6 W

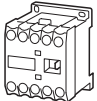

Rated operational current	Max. rating for three-phase motors, 50 – 60 Hz						Conventional thermal current $I_{th} = I_e$ AC-1		Contacts		Contact sequence
	AC-3		AC-3		AC-4		Open	Enclosed	N/O = Normally open	N/C = Normally closed	
	230 V	690 V	230 V	690 V	230 V	690 V	$I_{th} = I_e$	$I_{th} = I_e$			
e	P	P	P	P	P	P	A	A			
A	kW	kW	kW	kW	kW	kW					

Contactors DILEM

3-pole, with auxiliary contacts

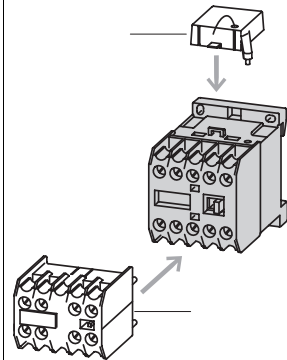
	Screw terminals	9	2.2	4	4	1.5	3	3	20	16	1 N/O	
		9	2.2	4	4	1.5	3	3	20	16	1 N/C	

4-pole

	Screw terminals	9	2.2	4	4	1.5	3	3	20	16		
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DILER, DILEM

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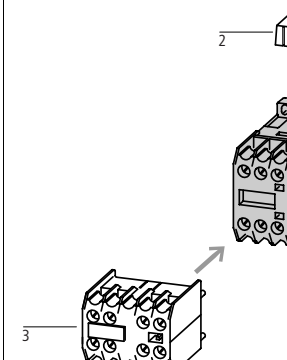
can be combined with auxiliary contact	AC operation		DC operation		Std. pack	Notes
	Part no.	Price	Part no.	Price		
	DILER-40(230V50HZ) 051759		DILER-40-G(24VDC)		off	 <p>Further actuating voltages Contacts according to EN 50011 Coil terminal markings to EN 50005 With DC operation: integrated resistance-diode combination, coil consumption 2.6 W.</p>
	DILER-31(230V50HZ) 051768		DILER-31-G(24VDC) 010157			
	051777		010042			

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For use with	see price list		see price list		Std. pack
	Article no.		Article no.		
...DILEM	DILEM-10(230V50HZ) 051786		DILEM-10-G(24VDC) 010213		1 off
...DILEM	DILEM-01(230V50HZ) 051795		DILEM-01-G(24VDC) 010343		
...DILEM	DILEM4(230V50HZ) 051804		DILEM4-G(24VDC) 012701		

With screw terminals:	
	
1 Overload relay	→ 6/5
2 Suppressor	→ 5/6
3 Auxiliary contact modules	→ 5/5
Enclosure <small>locally insulated</small>	
Other actuating voltages	→ 5/5
Accessories	→ 5/6

DILE

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Connection technique	Contacts		Rated operational current		Conventional thermal current	Distinctive number/style of combinations with base unit		
	N/O = Normally open	N/C = Normally closed	AC-15			DILER-40(-G)	DILER-31(-G)	DILER-22(-G)
			220 V	380 V				
			230 V	400 V				
			240 V	415 V				
			I_e	I_e	I_{th}			
			A	A	A			

Auxiliary contact modules

Screw terminals	Contacts		4	2	10	Distinctive number/style of combinations with base unit		
	N/O	N/C				DILER-40(-G)	DILER-31(-G)	DILER-22(-G)
2-pole	2 N/C	2 N/C						
	1 N/O	1 N/C						
4-pole	2 N/O	2 N/C						
	2 N/O	2 N/C						
2-pole	2 N/C	2 N/C				42 E	33	24
	1 N/O	1 N/C				51 E	42	33
	2 N/O					60 E	51	42
	1 N/O _E	1 N/C _L				51	42	33
	1 N/O	1 N/C				44 E	35	26
4-pole	4 N/C	4 N/C				53E	44	35
	1 N/O	3 N/C				62E	53	44
	2 N/O	2 N/C				71E	62	53
	3 N/O	1 N/C				80E	71	62
	4 N/O					62	53	44
	1 N/O, 1 N/O _E	1 N/C, 1 N/C _L						

Mini contactor relays



DILE

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Contact sequence	Can be combined with contactor	Part no. Article no.	Price see price list	Std. pack	Notes
		DILEM-10(-G)(...) DILEM-4(-G)(...)	02DILEM 010064	5 off	Contacts of the auxiliary contacts: ...DILEM according to EN 50012 ...DILE according to EN 50005 Contacts according to EN50012 are to be preferred. Version E combinations correspond to EN 50011 and are to be preferred. Auxiliary contact modules with positive acting contacts No positive action with early-make and late-break contacts NO _E : early-make NO contact NC _L : late break NC contact
			11DILEM 010080		
			22DILEM 010112		
		DILEM-10(-G)(...) DILEM-01(-G)(...) DILEM-4(-G)(...) DILER40(-G) DILER31(-G) DILER22	02DILE 010240		
			11DILE 010224		
			20DILE 010208		
			11DDILE 049824		
			04DILE 010256		
			13DILE 002397		
			22DILE 010288		
			31DILE 048912		
			40DILE 010304		
			22DDILE 049823		

Mini contactor relays



VGEDILE..., RCDIL...

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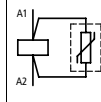
Actuating voltage	Contact sequence	For use with contactor relays	Part no. Article no.	Price see price list	Std. pack	Note concerning the product
U_s V AC						

Suppressors**Varistor suppressor**

24 – 48

110 – 250

380 – 415



DILE...

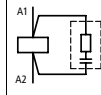
VGDILE48
010320**VGDILE250**
010336**VGDILE415**
010463

10 off

For AC-operated contactors 50 – 60 Hz.
DC operated contactors have an
integrated suppressor.
Note drop-out delay**RC suppressor**

24 – 48

110 – 250



DILE...

RCDILE48
044264**RCDILE250**
046320

10 off

10 off

For AC-operated contactors 50 – 60 Hz.
Note drop-out delay

For use with

Part no.
Article no.Price
see price list

Std. pack

Notes

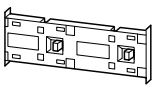
Spacers

For mechanical connection of contactor, relays and timing relays in combinations

DILE...
DILET...**VODILE**
026634

50 off

0 mm distance between relays

Mechanical interlock

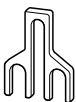
DILE...

MVDILE
010113

5 off

With contactors with the same or
different magnet system the distance
between contactors 0 mm, mechanical
lifespan 2.5×10^6 operations, additional
auxiliary contact modules can be fitted.**Paralleling link**

For auxiliary contacts

DILE...
...DILE**BT480**
052785

100 off

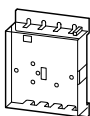
Not protected against direct contact in
accordance with IEC 536**Blade terminal to DIN 46244**For contacts and coil connections
 $1 \times 6.3 \times 0.8/2 \times 2.8 \times 0.8$ mmDILEM, DILM17 – DILM1000
DILE...
DILET...
M22-K...**BT483**
059904

100 off

Use insulated ferrules to DIN 46245.



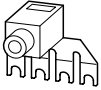

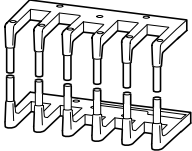
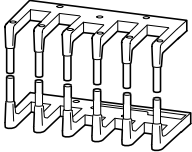

Sealable shrouds

transparent

DILE...
DILET...**HDILE**
010482

1 off

For latching on the contactor. For use
open or in the service distribution board.
Degree of protection: IP40 front

	For use with	Contact sequence	Part no. Article no.	Price see price list	Std. pack	Notes
Star-point bridge						
	DILEM		S1DILEM 220218		20 off	Protected against direct contact in accordance with IEC 536
Paralleling links						
Consisting of 2 paralleling links 4-pole						
	DILEM		P1DILEM 019095		5 off	4th pole can be broken off 4-pole: $I_{th} = 60$ A open 3-pole: $I_{th} = 50$ A open AC-1 current carrying capacity of the open contactor increases by a factor of 2.5. Protected against accidental contact in accordance with IEC 536.
Reversing wiring set						
Main current wiring for reversing combinations						
	DILEM (+MVDILEM)	-	MVS-WB-EM 220209		1 off	The following control cables are integrated in addition to electrical interlock: <ul style="list-style-type: none"> • K1M: A1 – K2M: 21 • K1M: 21 – K2M: A1 • K1M: A2 – K2M: A2 When combined with overload relay use separate mounting.
Star-delta wiring kit						
Main current wiring for star-delta combination incl. star-point bridge						
 	Mains contactor DILEM Delta contactor DILEM Star contactor DILEM	-	MVS-SB-EM 220213		1 off	The following control cables are integrated in addition to electrical interlock: <ul style="list-style-type: none"> • K3M: A1 – K5M: 21 • K3M: 21 – K5M: A1 • K3M: A2 – K5M: A2 When combined with overload relay use separate mounting.



xStart		DILA		Moeller HPL0211-2007/2008		http://catalog.moeller.net		
Connection technique	Contacts		Rated operational current		Conventional thermal current	Code number	Can be combined with auxiliary contact module	Contact sequence
	N/O = Normally open	N/C = Normally closed	AC-15					
			220 V	380 V				
			230 V	400 V				
			240 V	415 V				
			I_e	I_e	I_{th}			
			A	A	A			

Basic device: with forced operation contacts

Connection technique	Contacts		Rated operational current	Conventional thermal current	Code number	Can be combined with auxiliary contact module	Contact sequence
	N/O = Normally open	N/C = Normally closed					
Screw terminals	4 N/O		6	4	16	40E	DILA-XHI(V)...
	3 N/O	1 N/C				31E	DILA-XHI(V)...
	2 N/O	2 N/C				22E	DILA-XHI(V)...

Connection technique	Contacts		Rated operational current	Conventional thermal current	Code number	Can be combined with auxiliary contact module	Contact sequence
	N/O = Normally open	N/C = Normally closed					
Spring-loaded terminals	4 N/O		6	4	16	40E	DILA-XHIC(V)...
	3 N/O	1 N/C				31E	DILA-XHIC(V)...
	2 N/O	2 N/C				22E	DILA-XHIC(V)...

http://catalog.moeller.net		Moeller HPL0211-2007/2008		DILA		xStart	
AC operation		Std. pack	Contact sequence	DC operation		Std. pack	Notes
Part no. Article no.	Price see price list			Part no. Article no.	Price see price list		

DILA-40(230V50HZ) 276329		1 off		DILA-40(24VDC) 276344		1 off	With screw terminals: Accessories 1 suppressor → 5/42 2 auxiliary contact modules → 5/11 Further actuating voltages → 5/52 Contacts according to EN 50011 Coil terminal markings to EN 50005 DC operated contactors have a built-in suppressor circuit.
DILA-31(230V50HZ) 276364				DILA-31(24VDC) 276379			
DILA-22(230V50HZ) 276399				DILA-22(24VDC) 276414			

DILAC-40(230V50HZ) 276441		1 off		DILAC-40(24VDC) 276456		1 off	With spring-loaded terminals: Accessories 1 suppressor → 5/42 2 auxiliary contact modules → 5/11 Further actuating voltages → 5/52 Contacts according to EN 50011 Coil terminal markings to EN 50005 DC operated contactors have a built-in suppressor circuit.
DILAC-31(230V50HZ) 276473				DILAC-31(24VDC) 276488			
DILAC-22(230V50HZ) 276505				DILAC-22(24VDC) 276520			



DILA...XHI...

























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Connection technique	Contacts		Rated operational current		Conventional thermal current	Contact sequence
	N/O = Normally open	N/C = Normally closed	AC-15 220 V 230 V 240 V	380 V 400 V 415 V		
			I_e A	I_e A	I_{th} A	

DILA auxiliary contact modules

With interlocked opposing contacts (exception: ...XHI(C)V...)

Connection technique	Pole	Contact configuration	6	3	16	Diagram		
Screw terminals 	2 pole	2 N/C						
		1 N/O	1 N/C					
		2 N/O						
	4 pole 	4 N/C	4 N/C					
			1 N/O	3 N/C				
			2 N/O	2 N/C				
			3 N/O	1 N/C				
		4 N/O	4 N/O					
			1 N/O, 1 N/O _E	1 N/C, 1 N/C _L				
								
Spring-loaded terminals 	2 pole	2 N/C						
		1 N/O	1 N/C					
		2 N/O						
	4 pole 	4 N/C	4 N/C					
			1 N/O	3 N/C				
			2 N/O	2 N/C				
			3 N/O	1 N/C				
		4 N/O	4 N/O					
			1 N/O, 1 N/O _E	1 N/C, 1 N/C _L				
								

Contactor relays



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DILA...XHI...



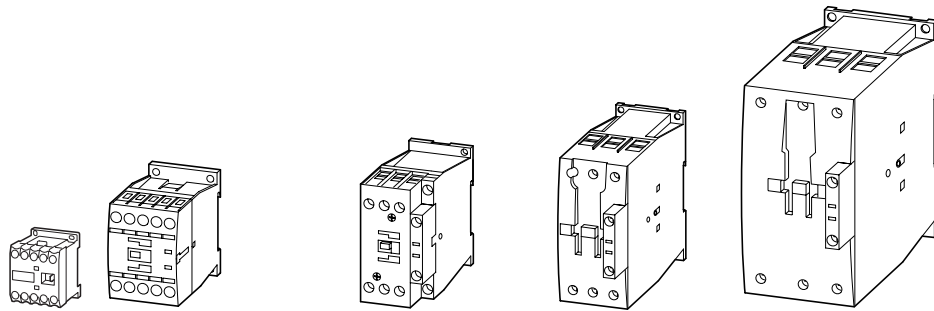
Code number and version of combination			Part no. Article no.	Price see price list	Std. pack	Notes
DILA(C)-40	DILA(C)-31	DILA(C)-22				
42 E	33	24	DILA-XHI02 276420		5 off	Version E combinations correspond to EN 50011 and are to be preferred; other combinations correspond to EN 50005 The DC operated contactor DILA(C)-22 must only be combined with 2 pole auxiliary contacts. NO _E : early-make NO contact NC _L : late break NC contact
51E	42	33	DILA-XHI11 276421			
60E	51	42	DILA-XHI20 276422			
51	42	33	DILA-XHIV11 276423			
44E	35	26	DILA-XHI04 276424			
53E	44	35	DILA-XHI13 276425			
62E	53	44	DILA-XHI22 276426			
71E	62	53	DILA-XHI31 276427			
80E	71	62	DILA-XHI40 276428			
62	53	44	DILA-XHIV22 276429			
42 E	33	24	DILA-XHIC02 276526			
51E	42	33	DILA-XHIC11 276527			
60E	51	42	DILA-XHIC20 276528			
51	42	33	DILA-XHICV11 276529			
44E	35	26	DILA-XHIC04 276530			
53E	44	35	DILA-XHIC13 276531			
62E	53	44	DILA-XHIC22 276532			
71E	62	53	DILA-XHIC31 276533			
80E	71	62	DILA-XHIC40 276534			
62	53	44	DILA-XHICV22 276535			

Contactor relays



DILM contactors
3 pole

Contactors DILM, DILH



DIL		EM	M7	M9	M12	M15	M17	M25	M32	M40	M50	M65	M80	M95	M115	M150	M170
Basic device	Page	→ 5/3	→ 5/17				→ 5/17			→ 5/17			→ 5/17				
Complete devices	Page	-	→ 5/21			-	→ 5/21			→ 5/21			→ 5/21				
Rated-operational voltage		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW

AC-3																	
Rated operational power for three-phase motors 50–60 Hz																	
220 V – 230 V	2,2	2.2	2.5	3.5	4	5	7.5	10	12.5	15.5	20	25	30	37	48	52	
380 V – 400 V	4	3	4	5.5	7.5	7.5	11	15	18.5	22	30	37	45	55	75	90	
440 V	4,6	4.5	5.5	7.5	8.4	10.5	15.5	20	25	32	41	51	60	75	95	105	
500 V	4	3.5	4.5	7	7.5	12	17.5	23	28	36	47	58	70	85	110	120	
660 V/690 V	4	3.5	4.5	6.5	7	11	14	17	23	30	35	63	75	90	96	140	
1000 V	-	-	-	-	-	-	-	-	-	-	-	1)	1)	1)	1)	1)	

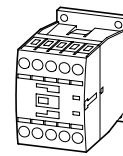
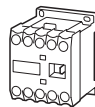
AC-4																	
Rated operational power for three-phase motors 50–60 Hz																	
⚠ Increase in life span for DILM7 – DILM150 to 200.000 operations																	
220 V – 230 V	1,5	1	1.5	2	2	2.5	3.5	4	5	6	7	12	16	17	20	20	
380 V – 400 V	3	2.2	2.5	3	3	4.5	6	7	9	10	12	20	26	28	33	33	
440 V	3,3	2.4	3	3.6	3.6	5.5	7	8	10	12	14	25	32	35	41	41	
500 V	3	2.5	2.8	3.5	3.5	6	8	9	11	13	16	29	36	40	47	47	
660 V/690 V	3	2.9	3.6	4.4	4.4	6.5	8.5	10	12	14	17	26	35	43	48	48	
1000 V	-	-	-	-	-	-	-	-	-	-	-	1)	1)	1)	1)	1)	

AC-1																	
Rated operational power for resistive load, 40 °C																	
220 V – 230 V	8	8	8	8	8	15	17	17	22	30	37	42	49	61	72	85	
380 V – 400 V	13	14	14	14	14	26	29	29	39	53	65	72	85	105	125	150	
440 V	15	16	16	16	16	30	34	34	45	58	71	80	94	116	138	170	
500 V	18	19	19	19	19	34	38	38	51	66	81	90	107	132	156	194	
660 V/690 V	23	25	25	25	25	45	51	51	68	91	111	125	148	182	216	268	
1000 V	-	-	-	-	-	-	-	-	-	-	-	1)	1)	1)	1)	1)	

Conventional thermal current																	
$I_{th} = I_e$ open at 40 °C																	
up to 690 V	22	22	22	22	22	40	45	45	60	80	98	110	130	160	190	225	
1000 V	-	-	-	-	-	-	-	-	-	-	-	1)	1)	1)	1)	1)	

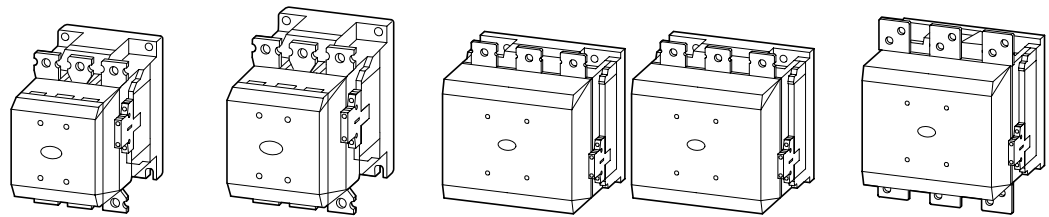
Notes 1) on request

Contactor
4 pole



DIL		EM4	MP20
Rated operational voltage	Page	→ 5/3	→ 5/17
AC-1			
Conventional free air thermal current $I_{th} = I_e$ open, at 40 °C		A	A
up to 690 V		22	22

DILM contactors
3 pole



	DIL	M185	M225	M250	M300	M400	M500	M580	M650	M750	M820	M1000	M1600	H1400	H2000
Basic device	Page	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Complete device	Page	→ 5/25			→ 5/25			→ 5/25		→ 5/25		→ 5/25			
Rated operational voltage		kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW	kW

AC-3 Rated operational power for AC motors 50–60 Hz															
220 V – 230 V	55	70	75	90	125	155	185	205	240	260	315	500	-	-	-
380 V – 400 V	90	110	132	160	200	250	315	355	400	450	560	900	-	-	-
440 V	115	142	157	190	255	345	370	420	480	525	650	1000	-	-	-
500 V	132	160	180	215	290	360	420	470	550	600	730	1180	-	-	-
660 V – 690 V	175	215	240	286	344	344	560	630	720	750	1000	1600	-	-	-
1000 V	108	108	108	132	132	132	600	600	800	800	1000	1) ¹⁾	-	-	-

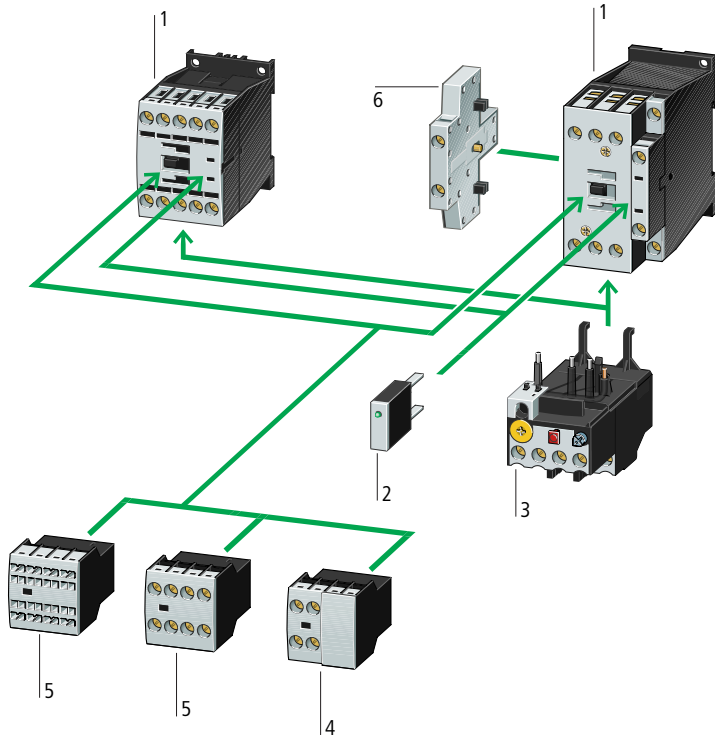
AC-4 Rated operational power for AC motors 50–60 Hz															
220 V – 230 V	41	51	62	75	92	112	143	161	181	209	260	430	-	-	-
380 V – 400 V	75	90	110	132	160	200	250	280	315	355	450	750	-	-	-
440 V	85	102	125	140	186	229	290	326	367	418	520	830	-	-	-
500 V	96	116	143	172	214	260	330	370	417	474	590	940	-	-	-
660 V – 690 V	127	155	189	229	283	344	440	494	556	633	780	1300	-	-	-
1000 V	108	108	108	132	132	132	509	509	678	678	1000	1) ¹⁾	-	-	-

AC-1 Rated operational power for resistive load, 40 °C															
220 V – 230 V	121	139	155	177	221	310	354	376	398	443	443	717	620	886	-
380 V – 400 V	210	241	268	306	382	535	612	650	689	766	766	1247	1071	1531	-
440 V	243	279	310	354	443	620	709	753	797	886	886	1371	1240	1773	-
500 V	277	317	352	403	503	705	806	856	906	1007	1007	1558	1410	2015	-
660 V – 690 V	365	419	465	532	664	930	1064	1130	1196	1330	1330	2151	1861	2660	-
1000 V	554	635	705	806	1007	1410	1612	1712	1813	2015	2015	2420	2417	3223	-

Conventional thermal current $I_{th} = I_e$ open at 40 °C															
	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
at 690 V	337	386	429	490	612	857	980	1041	1102	1225	1225	2200	1714	2450	-
1000 V	337	386	429	490	612	857	980	1041	1102	1225	1225	1700	1469	1959	-

Notes ¹⁾ on request





Contactors up to 90 kW (AC-3/400 V) 1

→ Page 5/17

Suppressors 2

→ Page 5/42

Overload relays 3

→ Page 6/6

Auxiliary contact modules 4

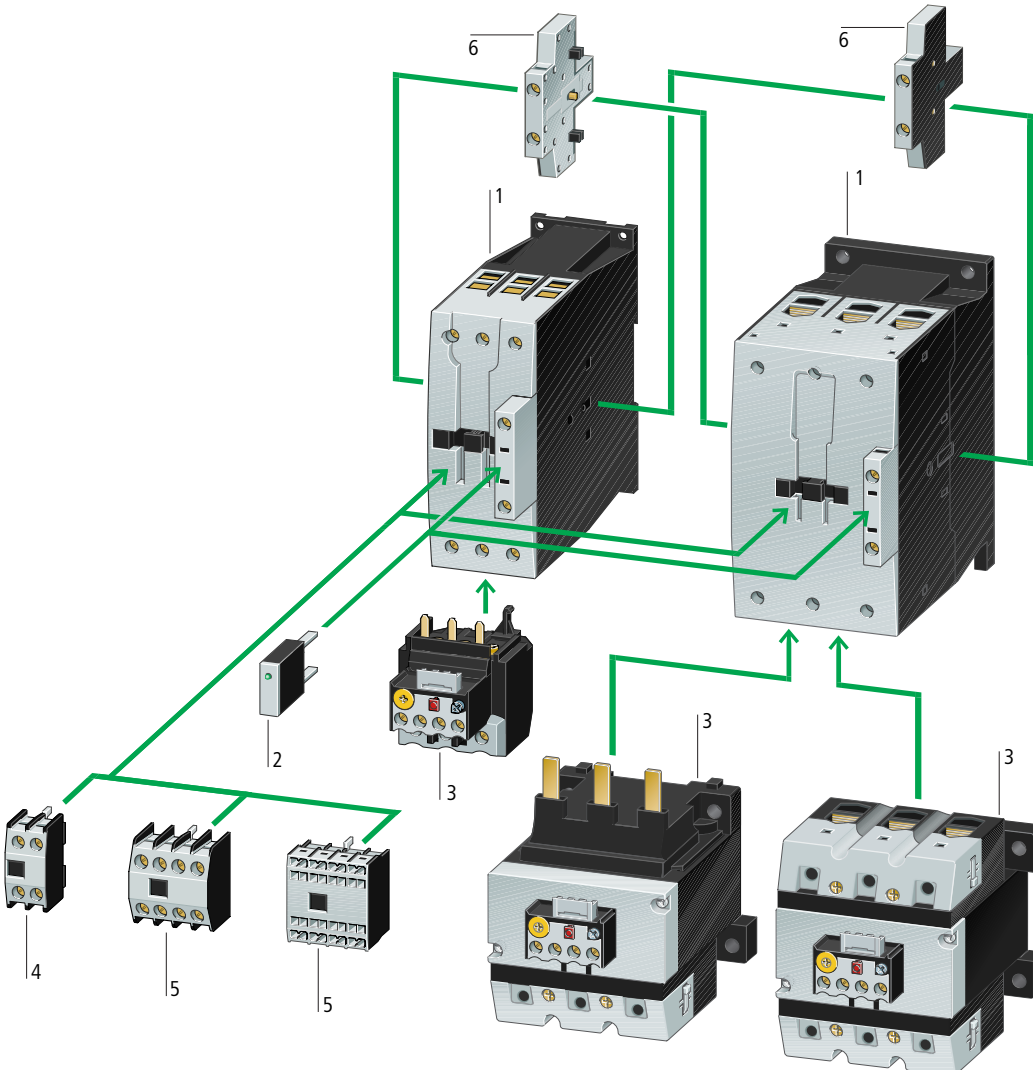
→ Page 5/28

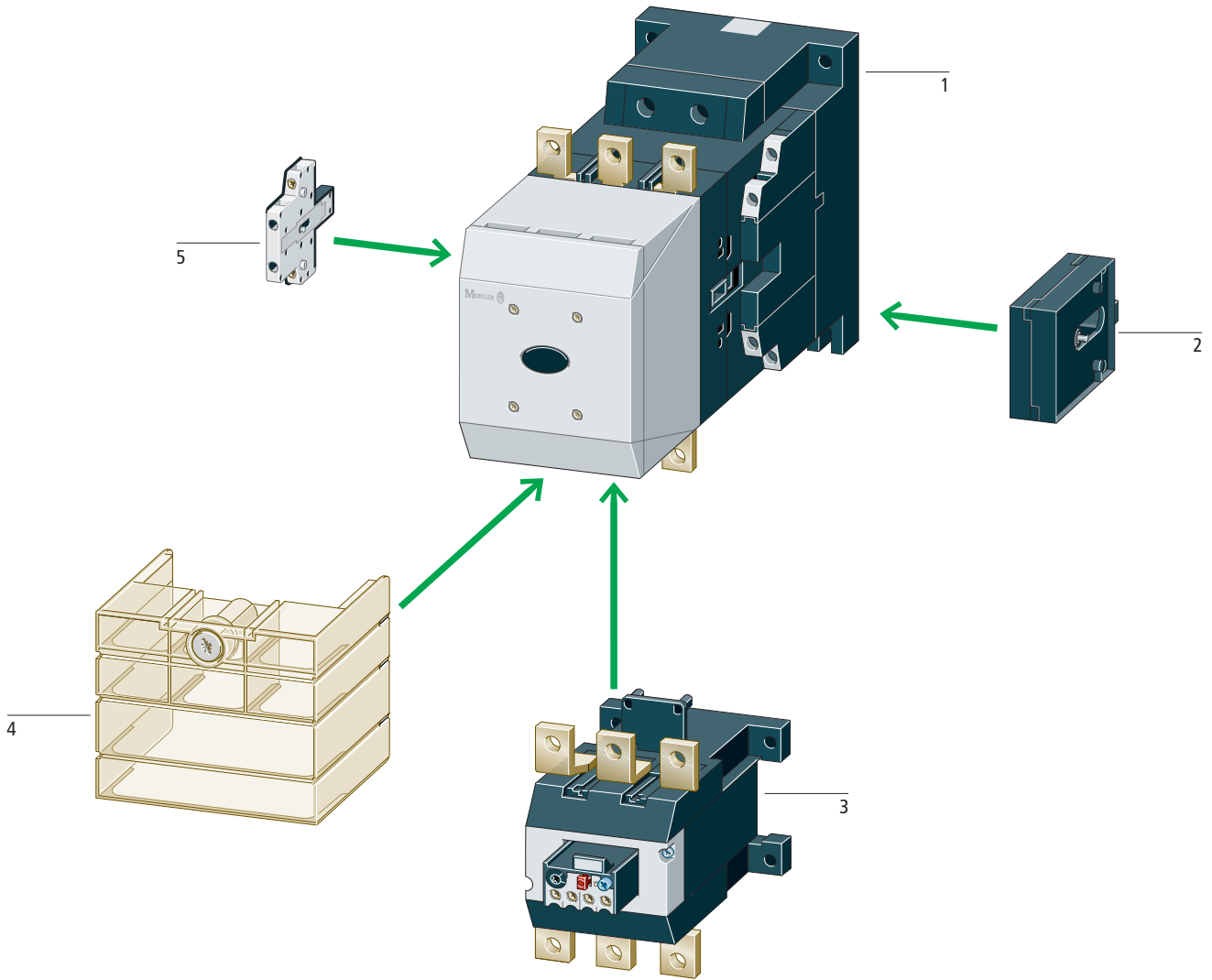
Auxiliary contact modules 5

→ Page 5/11

Auxiliary contact modules 6

→ Page 5/30





1
Contactors 90 – 900 kW
(AC-3/400 V)
Comfort range:

→ Page 5/25

1
Standard range 90 – 250 kW

→ Page 5/27

2
Mechanical interlock

→ Page 5/43

3
Overload relays

→ Page 6/11

4
Terminal cover

→ Page 5/47

5
Auxiliary contact modules

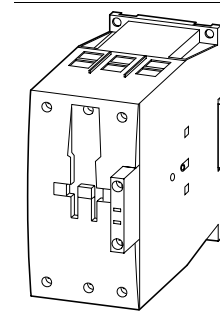
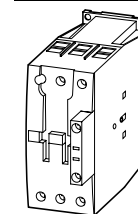
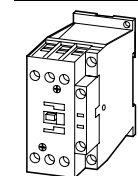
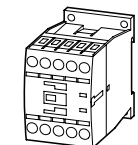
→ Page 5/30

Rated operational current	Max. rating for three-phase motors, 50 – 60 Hz						Conventional free air thermal current $I_{th} = I_e$ AC-1 at 60 °C	Contacts	Contact sequence
	AC-3		AC-4						
380 V 400 V	220 V 230 V	380 V 400 V	660 V 690 V	220 V 230 V	380 V 400 V	660 V 690 V	$I_{th} = I_e$	Open	N/O = Normally open N/C = Normally closed
I_e	P	P	P	P	P	P	A		
A	kW	kW	kW	kW	kW	kW			

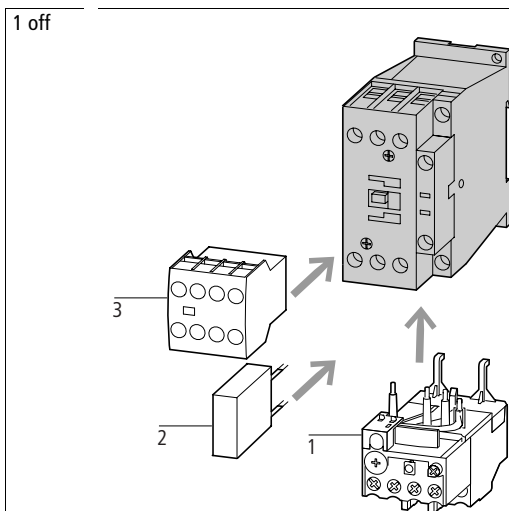
Basic units

Screw terminals

Pole	Rated operational current	Max. rating for three-phase motors, 50 – 60 Hz						Conventional free air thermal current $I_{th} = I_e$	Contacts	Contact sequence	
		AC-3		AC-4							
4 pole	12	3.5	5.5	6.5	2	3	4.4	20			
	3 pole	7	2.2	3	3.5	1	2.2	2.9	20	1 N/O	
		7	2.2	3	3.5	1	2.2	2.9	20	1 N/C	
		9	2.5	4	4.5	1.5	2.5	3.6	20	1 N/O	
	9	2.5	4	4.5	1.5	2.5	3.6	20	1 N/C		
	12	3.5	5.5	6.5	2	3	4.4	20	1 N/O		
	12	3.5	5.5	6.5	2	3	4.4	20	1 N/C		
	15.5	4	7.5	7	2	3	4.4	20	1 N/O		
	15.5	4	7.5	7	2	3	4.4	20	1 N/C		
	3 pole	18	5	7.5	11	2.5	4.5	6.5	35	1 N/O	
18		5	7.5	11	2.5	4.5	6.5	35	1 N/C		
25		7.5	11	14	3.5	6	8.5	40	1 N/O		
25		7.5	11	14	3.5	6	8.5	40	1 N/C		
32		10	15	17	4	7	10	40	1 N/O		
32		10	15	17	4	7	10	40	1 N/C		
3 pole	40	12.5	18.5	23	5	9	12	50			
	50	15.5	22	30	6	10	14	65			
	65	20	30	35	7	12	17	80			
	72	25	37	35	7	12	17	80			
3 pole	80	25	37	63	12	20	26	90			
	95	30	45	75	16	26	35	110			
	115	37	55	90	17	28	43	130			
	150	48	75	96	20	33	48	160			
	170	52	90	140	20	33	48	185			



Can be combined with auxiliary contact	AC operation		DC operation		Std. pack	Notes
	Part no. Article no.	Price see price list	Part no. Article no.	Price see price list		
	DILM32-XHI.. DILA-XHI(V)..	DILMP20(230V50HZ) 276970		DILMP20(24VDC) 276985		
	DILM32-XHI.. DILA-XHI(V)..	DILM7-10(230V50HZ) 276550		DILM7-10(24VDC) 276565		
	DILA-XHI(V)..	DILM7-01(230V50HZ) 276585		DILM7-01(24VDC) 276600		
	DILM32-XHI.. DILA-XHI(V)..	DILM9-10(230V50HZ) 276690		DILM9-10(24VDC) 276705		
	DILA-XHI(V)..	DILM9-01(230V50HZ) 276725		DILM9-01(24VDC) 276740		
	DILM32-XHI.. DILA-XHI(V)..	DILM12-10(230V50HZ) 276830		DILM12-10(24VDC) 276845		
	DILA-XHI(V)..	DILM12-01(230V50HZ) 276865		DILM12-01(24VDC) 276880		
	DILM32-XHI.. DILA-XHI(V)..	DILM15-10(230V50HZ) 290058		DILM15-10(24VDC) 290073		
	DILA-XHI(V)..	DILM15-01(230V50HZ) 290093		DILM15-01(24VDC) 290108		
	DILM32-XHI.. DILA-XHI(V).. DILM32-XHI11-S	DILM17-10(230V50HZ) 277004		DILM17-10(RDC24) 277018		
	DILA-XHI(V).. DILM32-XHI11-S	DILM17-01(230V50HZ) 277036		DILM17-01(RDC24) 277050		
	DILM32-XHI.. DILA-XHI(V).. DILM32-XHI11-S	DILM25-10(230V50HZ) 277132		DILM25-10(RDC24) 277146		
	DILA-XHI(V).. DILM32-XHI11-S	DILM25-01(230V50HZ) 277164		DILM25-01(RDC24) 277178		
	DILM32-XHI.. DILA-XHI(V).. DILM32-XHI11-S	DILM32-10(230V50HZ) 277260		DILM32-10(RDC24) 277274		
	DILA-XHI(V).. DILM32-XHI11-S	DILM32-01(230V50HZ) 277292		DILM32-01(RDC24) 277306		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM40(230V50HZ) 277766		DILM40(RDC24) 277780		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM50(230V50HZ) 277830		DILM50(RDC24) 277844		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM65(230V50HZ) 277894		DILM65(RDC24) 277908		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM72(230V50HZ) 107670		DILM72(RDC24) 107671		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM80(230V50HZ) 239402		DILM80(RDC24) 239416		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM95(230V50HZ) 239480		DILM95(RDC24) 239510		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM115(RAC240) 239548		DILM115(RDC24) 239555		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM150(RAC240) 239588		DILM150(RDC24) 239591		
	DILM150-XHI(V).. DILM1000-XHI(V)..	DILM170(RAC240) 107013		DILM170(RDC24) 107016		



Accessories






- 1 Overload relay → 6/7
- 2 Suppressor → 5/42
- 3 Auxiliary contact module → 5/28
- Further actuating voltages → 5/56
- Accessories → 5/43

The DC operated contactors have integral suppressor circuits (DILM7 - DILM15: Varistor).
Contactors DILM15, DILM150 and DILM170 have a built-in suppressor circuit.
Mirror contact for DILM7-01 to DILM32-01
Contactor contact according to EN 50012






Rated operational current	Max. rating for three-phase motors, 50 – 60 Hz						Conventional free air thermal current $I_{th} = I_e$ AC-1 at 60 °C	Contacts N/O = Normally open N/C = Normally closed	Contact sequence
	AC-3		AC-3		AC-4				
380 V 400 V	220 V	380 V	660 V	220 V	380 V	660 V	$I_{th} = I_e$	Open	
I_e	230 V	400 V	690 V	230 V	400 V	690 V			
A	P	P	P	P	P	P	A		
	kW	kW	kW	kW	kW	kW			



Basic units




spring-loaded terminals

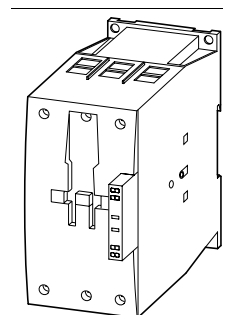
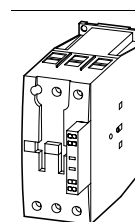
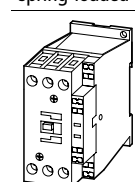
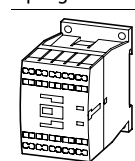
3 pole	7	2.2	3	3.5	1	2.2	2.9	20	1 N/O		
	9	2.5	4	4.5	1.5	2.5	3.6	20	1 N/O		
	9	2.5	4	4.5	1.5	2.5	3.6	20	1 N/C		
	12	3.5	5.5	6.5	2	3	4.4	20	1 N/O		
	12	3.5	5.5	6.5	2	3	4.4	20	1 N/C		

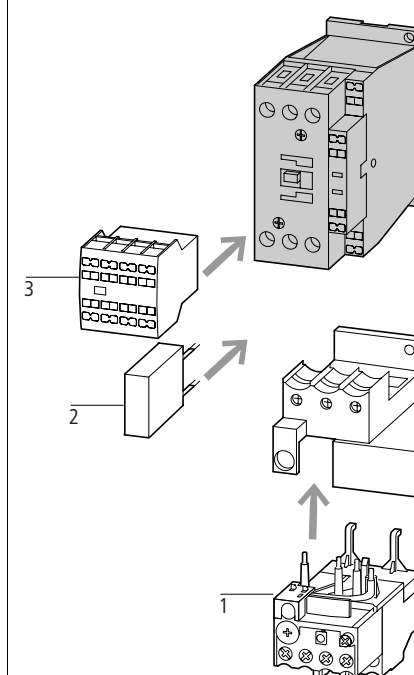
spring-loaded terminals on the auxiliary and control circuit terminals

3 pole	18	5	7.5	11	2.5	4.5	6.5	35	1 N/O		
	25	7.5	11	14	3.5	6	8.5	40	1 N/O		
	25	7.5	11	14	3.5	6	8.5	40	1 N/C		
	32	10	15	17	4	7	10	40	1 N/O		
	32	10	15	17	4	7	10	40	1 N/C		

3 pole	40	12.5	18.5	23	5	9	12	50			
	65	20	30	35	7	12	17	80			

3 pole	80	25	37	63	12	20	26	90			
	115	37	55	90	17	28	43	130			
	150	48	75	96	20	33	48	160			



Can be combined with auxiliary contact	AC operation		DC operation		Std. pack	Notes
	Part no. Article no.	Price see price list	Part no. Article no.	Price see price list		
	DILM32-XHIC.. DILA-XHIC(V)..	DILMC7-10(230V50HZ) 277389	DILMC7-10(24VDC) 277404		1 off	
	DILA-XHIC(V)..	DILMC7-01(230V50HZ) 277421	DILMC7-01(24VDC) 277436			
	DILM32-XHIC.. DILA-XHIC(V)..	DILMC9-10(230V50HZ) 277453	DILMC9-10(24VDC) 277468			
	DILA-XHIC(V)..	DILMC9-01(230V50HZ) 277485	DILMC9-01(24VDC) 277500			
	DILM32-XHIC.. DILA-XHIC(V)..	DILMC12-10(230V50HZ) 277517	DILMC12-10(24VDC) 277532			
	DILA-XHIC(V)..	DILMC12-01(230V50HZ) 277549	DILMC12-01(24VDC) 277564			
	DILM32-XHIC.. DILA-XHIC(V)..	DILMC17-10(230V50HZ) 277581	DILMC17-10(RDC24) 277595			
	DILA-XHIC(V)..	DILMC17-01(230V50HZ) 277611	DILMC17-01(RDC24) 277625			
	DILM32-XHIC.. DILA-XHIC(V)..	DILMC25-10(230V50HZ) 277641	DILMC25-10(RDC24) 277655			
	DILA-XHIC(V)..	DILMC25-01(230V50HZ) 277671	DILMC25-01(RDC24) 277685			
	DILM32-XHIC.. DILA-XHIC(V)..	DILMC32-10(230V50HZ) 277701	DILMC32-10(RDC24) 277715			
	DILA-XHIC(V)..	DILMC32-01(230V50HZ) 277731	DILMC32-01(RDC24) 277745			
	DILM150-XHIC(V).. DILM1000-XHIC..	DILMC40(230V50HZ) 277965	DILMC40(RDC24) 277979			
	DILM150-XHIC(V).. DILM1000-XHIC..	DILMC50(230V50HZ) 277995	DILMC50(RDC24) 278009			
	DILM150-XHIC(V).. DILM1000-XHIC..	DILMC65(230V50HZ) 278025	DILMC65(RDC24) 278039			
	DILM150-XHIC(V).. DILM1000-XHIC..	DILMC80(230V50HZ) 239618	DILMC80(RDC24) 239652			
	DILM150-XHIC(V).. DILM1000-XHIC..	DILMC95(230V50HZ) 239685	DILMC95(RDC24) 239715			
	DILM150-XHIC(V).. DILM1000-XHIC..	DILMC115(RAC240) 239736	DILMC115(RDC24) 239741			
	DILM150-XHIC(V).. DILM1000-XHIC..	DILMC150(RAC240) 239751	DILMC150(RDC24) 239765			

- Accessories**
- 1 Overload relay → 6/7
 - 2 Suppressor → 5/42
 - 3 Auxiliary contact module → 5/28
 - Further actuating voltages → 5/56
 - Accessories → 5/43

The DC operated contactors have integral suppressor circuits (DILM7 - DILM15: Varistor). Contactors DILM115, DILM150 and DILM170 have a built-in suppressor circuit. Mirror contact for DILM7-01 to DILM32-01 Contactor contact according to EN 50012



DLLM

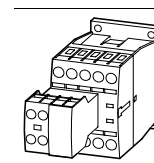
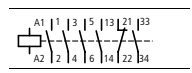
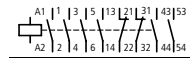
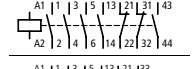
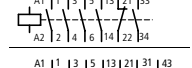
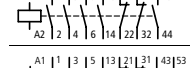
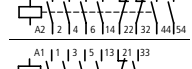
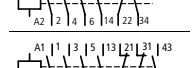
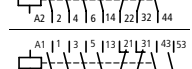
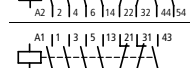
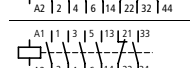
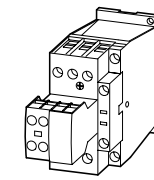
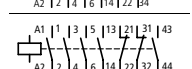
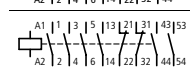
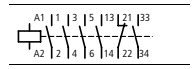
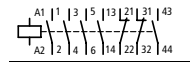
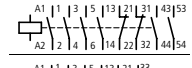
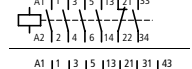
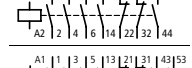
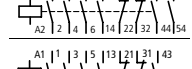
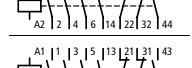
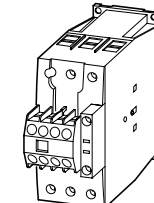
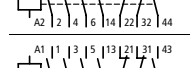
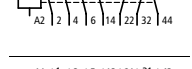
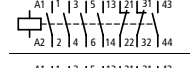
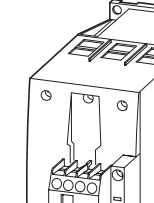
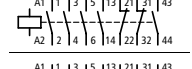
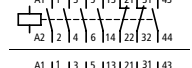
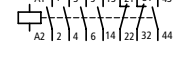
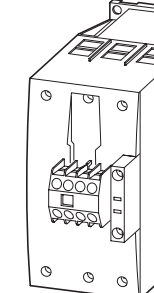

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Rated operational current	Max. rating for three-phase motors, 50 – 60 Hz						Conventional free air thermal current $I_{th} = I_e$ AC-1 at 60 °C Open $I_{th} = I_e$ A	Contacts N/O = Normally open N/C = Normally closed	Contact sequence
	AC-3 380 V 400 V 380 V 400 V I_e A	AC-3 220 V 380 V 230 V 400 V P kW		AC-4 220 V 380 V 230 V 400 V P kW		660 V 690 V P kW			

Complete devices DILM

Screw terminals

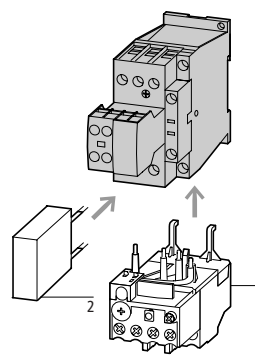
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	7	2.2	3	3.5	1	2.2	2.9	20	3 N/O	2 N/C	
	7	2.2	3	3.5	1	2.2	2.9	20	2 N/O	2 B	
	9	2.5	4	4.5	1.5	2.5	3.6	20	2 N/O	1 N/C	
	9	2.5	4	4.5	1.5	2.5	3.6	20	2 N/O	2 B	
	9	2.5	4	4.5	1.5	2.5	3.6	20	3 N/O	2 N/C	
	12	3.5	5.5	6.5	2	3	4.4	20	2 N/O	1 N/C	
	12	3.5	5.5	6.5	2	3	4.4	20	2 N/O	2 B	
	12	3.5	5.5	6.5	2	3	4.4	20	3 N/O	2 N/C	
	15.5	4	7.5	7	2	3	4.4	20	2 N/O	2 B	
	18	5	7.5	11	2.5	4.5	6.5	35	2 N/O	1 N/C	
	18	5	7.5	11	2.5	4.5	6.5	35	2 N/O	2 B	
	18	5	7.5	11	2.5	4.5	6.5	35	3 N/O	2 N/C	
	25	7.5	11	14	3.5	6	8.5	40	2 N/O	1 N/C	
	25	7.5	11	14	3.5	6	8.5	40	2 N/O	2 B	
	25	7.5	11	14	3.5	6	8.5	40	3 N/O	2 N/C	
	32	10	15	17	4	7	10	40	2 N/O	1 N/C	
	32	10	15	17	4	7	10	40	2 N/O	2 B	
	32	10	15	17	4	7	10	40	3 N/O	2 N/C	
	40	12.5	18.5	23	5	9	12	50	2 N/O	2 N/C	
	50	15.5	22	30	6	10	14	65	2 N/O	2 N/C	
	65	20	30	35	7	12	17	80	2 N/O	2 N/C	
	80	25	37	63	12	20	26	90	2 N/O	2 N/C	
	95	30	45	75	16	26	35	110	2 N/O	2 N/C	
	115	37	55	90	17	28	43	130	2 N/O	2 N/C	
	150	48	75	96	20	34	48	160	2 N/O	2 N/C	

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DILM



AC operation	DC operation	Std. pack	Notes
Part no. Article no.	Part no. Article no.		
DILM7-21(230V50HZ) 276620	DILM7-21(24VDC) 276635	1 off	 <p>Accessories 1 Overload relay → 6/7 2 Suppressor → 5/42 Accessories → 5/43</p> <p>The DC operated contactors have integral suppressor circuits (DILM7 - DILM15: Varistor). Contactors DILM115, DILM150 and DILM170 have a built-in suppressor circuit. Mirror contact for DILM7 to DILM150 Contactor contact according to EN 50012</p>
DILM7-32(230V50HZ) 276655	DILM7-32(24VDC) 276670		
DILM7-22(230V50HZ) 106360	DILM7-22(24VDC) 106367		
DILM9-21(230V50HZ) 276760	DILM9-21(24VDC) 276775		
DILM9-22(230V50HZ) 106361	DILM9-22(24VDC) 106368		
DILM9-32(230V50HZ) 276795	DILM9-32(24VDC) 276810		
DILM12-21(230V50HZ) 276900	DILM12-21(24VDC) 276915		
DILM12-22(230V50HZ) 106362	DILM12-22(24VDC) 106369		
DILM12-32(230V50HZ) 276935	DILM12-32(24VDC) 276950		
DILM15-22(230V50HZ) 106363	DILM15-22(24VDC) 106370		
DILM17-21(230V50HZ) 277068	DILM17-21(RDC24) 277082		
DILM17-22(230V50HZ) 106364	DILM17-22(RDC24) 106371		
DILM17-32(230V50HZ) 277100	DILM17-32(RDC24) 277114		
DILM25-21(230V50HZ) 277196	DILM25-21(RDC24) 277210		
DILM25-22(230V50HZ) 106365	DILM25-22(RDC24) 106372		
DILM25-32(230V50HZ) 277228	DILM25-32(RDC24) 277242		
DILM32-21(230V50HZ) 277324	DILM32-21(RDC24) 277338		
DILM32-22(230V50HZ) 106366	DILM32-22(RDC24) 106373		
DILM32-32(230V50HZ) 277356	DILM32-32(RDC24) 277370		
DILM40-22(230V50HZ) 277798	DILM40-22(RDC24) 277812		
DILM50-22(230V50HZ) 277862	DILM50-22(RDC24) 277876		
DILM65-22(230V50HZ) 277926	DILM65-22(RDC24) 277940		
DILM80-22(230V50HZ) 239449	DILM80-22(RDC24) 239463		
DILM95-22(230V50HZ) 239527	DILM95-22(RDC24) 239541		
DILM115-22(RAC240) 239578	DILM115-22(RDC24) 239581		
DILM150-22(RAC240) 239598	DILM150-22(RDC24) 239601		

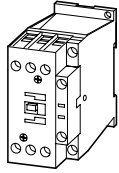
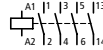
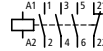

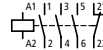
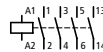
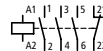
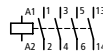
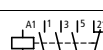
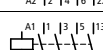
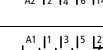
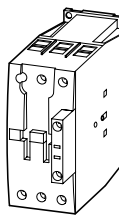
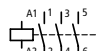
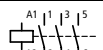
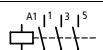
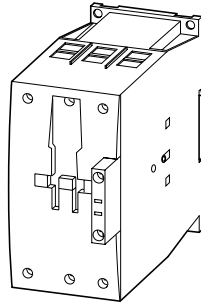
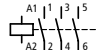
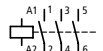
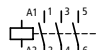
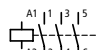
Contactors DILM, DILH

Contactors DILM, DILH

Rated operational current AC-3	Max. rating for three-phase motors, 50 – 60 Hz							Conventional free air thermal current $I_{th} = I_e$ AC-1 at 60 °C Open	Contacts N/O = Normally open N/C = Normally closed	Contact sequence
	AC-3	AC-3	AC-4							
380 V 400 V	220 V 230 V	380 V 400 V	660 V 690 V	220 V 230 V	380 V 400 V	660 V 690 V	$I_{th} = I_e$			
I_e	P	P	P	P	P	P	A			
A	kW	kW	kW	kW	kW	kW				

Basic units

Screw terminals

	3 pole	7	2.2	3	3.5	1	2.2	2.9	20	1 N/O	
		7	2.2	3	3.5	1	2.2	2.9	20	1 N/C	
		9	2.5	4	4.5	1.5	2.5	3.6	20	1 N/O	
		9	2.5	4	4.5	1.5	2.5	3.6	20	1 N/C	
		12	3.5	5.5	6.5	2	3	4.4	20	1 N/O	
		12	3.5	5.5	6.5	2	3	4.4	20	1 N/C	
		18	5	7.5	11	2.5	4.5	6.5	35	1 N/O	
		18	5	7.5	11	2.5	4.5	6.5	35	1 N/C	
		25	7.5	11	14	3.5	6	8.5	40	1 N/O	
		25	7.5	11	14	3.5	6	8.5	40	1 N/C	
	3 pole	40	12.5	18.5	23	5	9	12	50		
		50	15.5	22	30	6	10	14	65		
		65	20	30	35	7	12	17	80		
	3 pole	80	25	37	63	12	20	26	90		
		95	30	45	75	16	26	35	110		
		115	37	55	90	17	28	43	130		
		150	48	75	96	20	33	48	160		

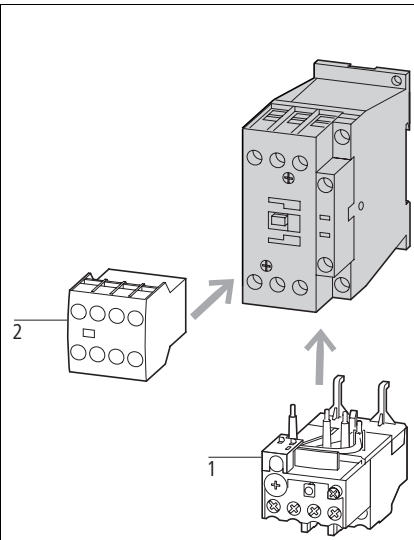
Notes

All contactors have a built-in suppressor circuit.
Mirror contact for DILMF8-01 to DILMF32-01
Contactor contact according to EN 50012

Contactors DILM, DILH



Can be combined with auxiliary contact	AC operation	Std. pack	Notes
	Part no. Article no.	Price see price list	
	DILMF8-10(RAC240) 104413		
	DILMF8-01(RAC240) 104417		
	DILMF11-10(RAC240) 104421		
	DILMF11-01(RAC240) 104425		
	DILMF14-10(RAC240) 104429		
	DILMF14-01(RAC240) 104433		
	DILMF17-10(RAC240) 104437		
	DILMF17-01(RAC240) 104441		
	DILMF25-10(RAC240) 104445		
	DILMF25-01(RAC240) 104449		
	DILMF32-10(RAC240) 104453		
	DILMF32-01(RAC240) 104457		
	DILMF40(RAC240) 104461		
	DILMF50(RAC240) 104465		
	DILMF65(RAC240) 104469		
	DILMF80(RAC240) 104473		
	DILMF95(RAC240) 104477		
	DILMF115(RAC240) 104481		
	DILMF150(RAC240) 104485		
		1 off	



Accessories

- 1 Overload relay → 6/7
- 2 Auxiliary contact module → 5/28
- Further actuating voltages → 5/58
- Accessories → 5/43

Page

- 6/7
- 5/28
- 5/58
- 5/43

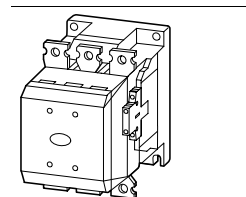

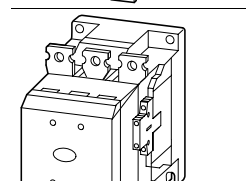
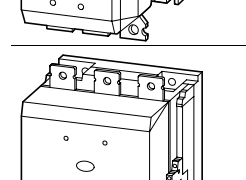
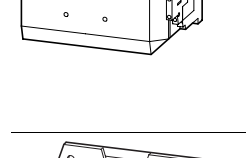
- Contactors suitable for semi-conductor industry according to SEMI F47.
- Contactors humm-free, suitable for building services automation.
- Operating mechanism adjustable from 50 Hz to 400 Hz.

DILM, DILH

http://catalog.moeller.net

Rated operational current	Max. rating for three-phase motors, 50 – 60 Hz									Conventional free air thermal current $I_{th} = I_e$ AC-1 at 40 °C	Contact sequence	
	AC-3			AC-3			AC-4					Open
I_e	380 V	400 V	220 V	380 V	660 V	1000 V	220 V	380 V	660 V	1000 V	$I_{th} = I_e$	
A			P	P	P	P	P	P	P	P	A	

DILM contactors, comfort

	185	55	90	175	108	41	75	127	108	275	
	225	70	110	215	108	51	90	155	108	315	
	250	75	132	240	108	62	110	189	108	350	
	300	90	160	286	132	75	132	229	132	400	
	400	125	200	344	132	92	160	283	132	500	
	500	155	250	344	132	112	200	344	132	700	
	580	185	315	560	600	143	250	440	509	800	
	650	205	355	630	600	161	280	494	509	850	
	750	240	400	720	800	181	315	556	678	900	
	820	260	450	750	800	209	355	633	678	1000	
	1000	315	560	1000	1100	260	450	780	1000	1000	
	1600	500	900	1600	1) 1100	430	750	1300	1) 1000	1800	


DILM contactors, comfort

	1400	
	2000	

Note concerning the product

660 V, 690 V or 1000 V: not directly reversing
 All contactors have a built-in suppressor circuit.
 When operating contactors DILM580 to DIL1600 with frequency inverter, the suppressor circuit on the load side must be removed.
 During a high voltage test for the contactors DILM580 to DILH2000 the suppressor circuit on the load side must be removed.

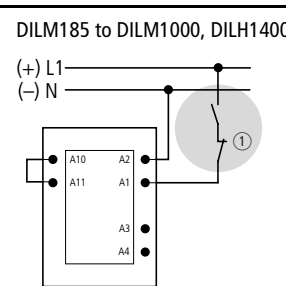
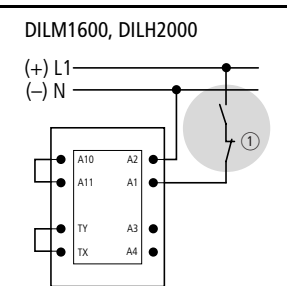
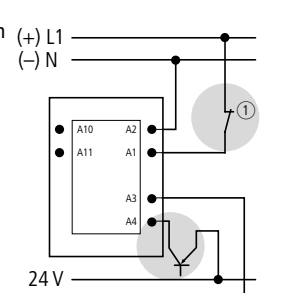
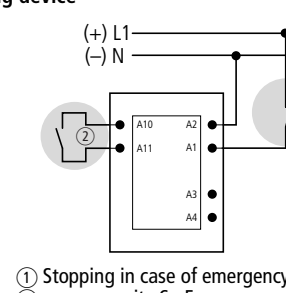
Control voltages
 RA250 Δ 110 V – 250 V AC/DC
 RAW250 Δ 230 V – 250 V AC/DC

Accessories
 Auxiliary contact modules \rightarrow 5/30
 Enclosures 
 Further actuating voltages \rightarrow 5/59

DILM, DILH

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Part no. Article no.	Price see price list	Std. pack	Note concerning the product
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DILM185/22(RA250) 208193		1 off	<p>Classical A1/A2 are attached to power supply as normal</p>  <p>DILM185 to DILM1000, DILH1400</p> <p>DILM1600, DILH2000</p>  <p>Direct from the PLC A 24 V output from the PLC can be directly connected to the connections A3/A4.</p>  <p>From a low-power actuating device Low-power actuating devices such as PCB relays, actuating devices or position switches can be directly connected to A10/A11.</p>  <p>① Stopping in case of emergency (Emergency-stop) ② max. capacity 6 nF</p>
DILM225/22(RA250) 208197			
DILM250/22(RA250) 208201			
DILM300/22(RA250) 208205			
DILM400/22(RA250) 208209			
DILM500/22(RA250) 208213			
DILM580/22(RA250) 208216			
DILM650/22(RA250) 208219			
DILM750/22(RA250) 208222			
DILM820/22(RA250) 208225			
DILM1000/22(RA250) 267214			
DILM1600/22(RAW250) 106727			

DILH1400/22(RAW250) 272441		1 off	<p>All contactors can be combined with auxiliary contact module DILM 1000-XHI...</p>
DILH2000/22(RAW250) 272442			

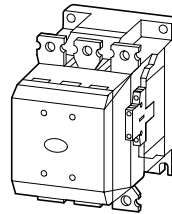
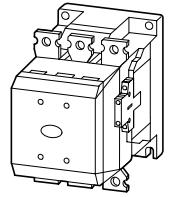
DILM Moeller HPL0211-2007/2008 <http://catalog.moeller.net>

<http://catalog.moeller.net> Moeller HPL0211-2007/2008 DILM

Rated operational current AC-3 380 V 400 V	Max. rating for three-phase motors, 50 – 60 Hz								Conventional free air thermal current $I_{th} = I_e$ AC-1 at 55 °C Open $I_{th} = I_e$	Contact sequence
	AC-3				AC-4					
I_e	220 V	380 V	660 V	1000 V	220 V	380 V	660 V	1000 V	A	
	230 V	400 V	690 V		230 V	400 V	690 V			
	P	P	P	P	P	P	P	P		
	A	kW	kW	kW	kW	kW	kW	kW	A	

Complete devices DILM

Complete devices DILM



185	55	90	175	108	41	75	127	108	337	
225	70	110	215	108	51	90	155	108	386	
250	75	132	240	108	62	110	189	108	429	
300	90	160	286	132	75	132	229	132	490	
400	125	200	344	132	92	160	283	132	612	
500	155	250	344	132	112	200	344	132	857	

Notes

660/690 V or 1000 V: not directly reversing

All contactors have a built-in suppressor circuit.

Accessories

Auxiliary contact modules → 5/30

Enclosure totally insulated

Further actuating voltages → 5/59

Can be combined with auxiliary contact

Part no. Article no.	Price see price list	Std. pack	Notes
DILM1000-XHI...	DILM185-S/22(220-240V50/60HZ) 274185	1 off	
DILM1000-XHI...	DILM225-S/22(220-240V50/60HZ) 274187		
DILM1000-XHI...	DILM250-S/22(220-240V50/60HZ) 274190		
DILM1000-XHI...	DILM300-S/22(220-240V50/60HZ) 274193		
DILM1000-XHI...	DILM400-S/22(220-240V50/60HZ) 274196		
DILM1000-XHI...	DILM500-S/22(220-240V50/60HZ) 274199		

Ordering

Auxiliary contact modules



DILM, DILA

Moeller HPL0211-2007/2008

<http://catalog.moeller.net>

Contactors DILM, DILH

Connection technique	Conventional thermal current $I_{th} = I_e$ AC-1 at 50 °C	Contacts	Contact sequence	Can be combined with basic unit	Part no. Article no.	Price see price list	Std. pack
	Open	N/O = Normally open, N/O _E = Normally open (early make contact) N/C = Normally closed N/C _L = Normally closed (late break contact)					
	$I_{th} = I_e$ A						

Auxiliary contact modules


















With positively driven contacts; except XHIV and XHICV

Top mounting auxiliary contacts

	Screw terminals	2 pole	16	1 N/O	1 N/C		DILM(C)7-10... DILM(C)9-10... DILM(C)12-10... DILM(C)15-10... DILM(C)17-10... DILM(C)25-10... DILM(C)32-10...	DILM32-XHI11 277376	5 off
		2 pole			2 N/C			DILM32-XHI02 277375	
		4 pole		2 N/O	2 N/C			DILM32-XHI22 277377	
	spring-loaded terminals	2 pole	16	1 N/O	1 N/C			DILM32-XHI31 106112	
		2 pole				2 N/C		DILM32-XHI02 277750	
		4 pole		2 N/O	2 N/C		DILM32-XHI22 277752		
	Screw terminals	2 pole	16	2 N/O			DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32...	DILA-XHI20 276422	
				1 N/O	1 N/C			DILA-XHI11 276421	
					2 N/C			DILA-XHI02 276420	
	Screw terminals	4 pole	16	1 N/O _E	1 N/C _L			DILA-XHIV11 276423	
				4 N/O			DILA-XHI40 276428		
				3 N/O	1 N/C		DILA-XHI31 276427		
	Screw terminals	4 pole	16	2 N/O	2 N/C			DILA-XHI22 276426	
				1 N/O	3 N/C		DILA-XHI13 276425		
					4 N/C		DILA-XHI04 276424		
	Screw terminals	4 pole	16	1 N/O, 1 N/O _E	1 N/C, 1 N/C _L			DILA-XHIV22 276429	
				2 N/O			DILA-XHIC20 276528		
				1 N/O	1 N/C		DILA-XHIC11 276527		
	spring-loaded terminals	2 pole	16		2 N/C			DILA-XHIC02 276526	
				1 N/O _E	1 N/C _L		DILA-XHICV11 276529		

Notes

- Interlocked opposing contacts, to IEC/EN 60947-5-1 Annex L, within the auxiliary contact modules (not N/O (early make) and N/C (late break) contacts) and for the built-in auxiliary contacts of the DILM7 – DILM32
- Auxiliary break contact can be used as mirror contact to IEC/EN 60947-4-1 Annex F (not N/C (late break) contact)

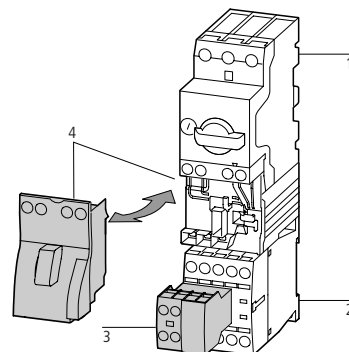
Connection technique	Conventional thermal current $I_{th} = I_e$ AC-1 at 50 °C	Contacts	Contact sequence	Can be combined with basic unit	Part no. Article no.	Price see price list	Std. pack	
	Open	N/O = Normally open, N/O _E = Normally open (early make contact)						
	$I_{th} = I_e$ A	N/C = Normally closed N/C _L = Normally closed (late break contact)						
Auxiliary contact modules								
With positively driven contacts; except XHIV and XHICV								
Top mounting auxiliary contacts								
	spring-loaded terminals	4 pole	16	4 N/O		DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32...	5 off	
				3 N/O 1 N/C				DILA-XHIC40 276534
				2 N/O 2 N/C				DILA-XHIC31 276533
				1 N/O 3 N/C				DILA-XHIC22 276532
								DILA-XHIC13 276531
								DILA-XHIC04 276530
								DILA-XHICV22 276535
High version ¹⁾								
	Screw terminals	2 pole	16	2 N/O		DILM7... DILM9... DILM12... DILM15...	5 off	
				1 N/O 1 N/C				DILA-XHIT20 101042
								DILA-XHIT11 101043
	Screw terminals	4 pole	16	2 N/O 2 N/C		DILA-XHIT02 101041	5 off	
						DILA-XHIT22 101044		
Side mounting auxiliary contacts ²⁾								
	Screw terminals	2 pole	10	1 N/O 1 N/C		DILM17... DILM25... DILM32...	DILM32-XHI11-S 101371	1 off

Notes

¹⁾ Suitable for combination with electrical wire jumpers in tool-less plug connection; for use with:

- DILM12-XSL
- DILM12-XRL
- DILM12-XS1
- PKZM0-XDM12
- PKZM0-XRM12
- PKZM0-XSM12

- 1 PKZM0
- 2 DILM7 – DILM15
- 3 DILA-XHIT
- 4 PKZM0-XDM12



²⁾ Can be fitted only to

the left of the contactor; can not be combined with top-mounting auxiliary contacts or mechanical interlocks

- Interlocked opposing contacts, to IEC/EN 60947-5-1 Annex L, within the auxiliary contact modules (not N/O (early make) and N/C (late break) contacts) and for the built-in auxiliary contacts of the DILM7 – DILM32
- Auxiliary break contact can be used as mirror contact to IEC/EN 60947-4-1 Annex F (not N/C (late break) contact)
- No auxiliary contacts can be fitted between 2 contactors.



















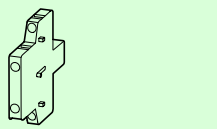
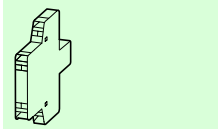
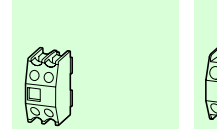
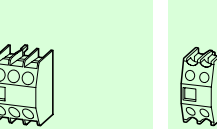
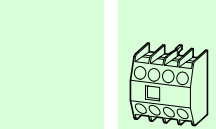
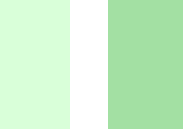
Ordering Auxiliary contact modules

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Contactors DILM, DILH

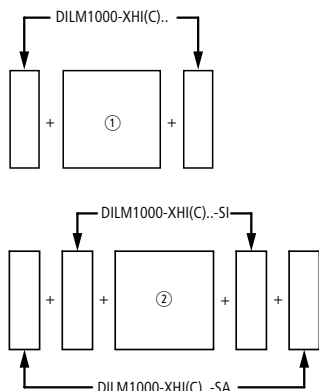
DILM		Connection technique		Conventional thermal current $I_{th} = I_e$ AC-1	Contacts	Contact sequence	Can be combined with basic unit	Part no. Article no.	Price see price list	Std. pack
				Open	N/O = Normally open, N/O _E = Normally open (early make contact) N/C = Normally closed N/C _L = Normally closed (late break contact)					
				$I_{th} = I_e$						
				A						
Auxiliary contact modules										
With positively driven contacts; except XHIV and XHICV										
	Screw terminals	2 pole	16	2 N/O			DILM40... DILM50... DILM65... DILM72... DILM80... DILM95... DILM115... DILM170...	DILM150-XHI20 277945		5 off
			16	1 N/O	1 N/C			DILM150-XHI11 277946		
			16	1 N/O	1 N/C			DILM150-XHIA11 283463		
			16		2 N/C			DILM150-XHI02 277947		
		4 pole	16	4 N/O				DILM150-XHI40 277948		
			16	3 N/O	1 N/C			DILM150-XHI31 277949		
			16	2 N/O	2 N/C			DILM150-XHI22 277950		
			16	2 N/O	2 N/C			DILM150-XHIA22 283464		
			16	1 N/O	3 N/C			DILM150-XHI13 277951		
			16		4 N/C			DILM150-XHI04 277952		
16	1 N/O, 1 N/O _E		1 N/C, 1 N/C _L		DILM150-XHIV22 277953					
Side mounting auxiliary contacts										
	Screw terminals	2 pole	10	1 N/O	1 N/C		DILM40 – DILH2000	DILM1000-XHI11-SI 278425		1 off
			10	1 N/O _E	1 N/C _L		DILM40 – DILH2000	DILM1000-XHIV11-SI 278426		
			10	1 N/O	1 N/C		DILM80 – DILH2000	DILM1000-XHI11-SA 278427		

						
	DILM1000-XHI(V)11-SI	DILM1000-XHI(V)11-SA	DILM150-XHI20 DILM150-XHI11 DILM150-XHI02	DILM150-XHI40 DILM150-XHI31 DILM150-XHI(V)22 DILM150-XHI13 DILM150-XHI04	DILM150-XHIA11	DILM150-XHIA22
DILM40 ... DILM72	2 × – 1 × –	– 2 × – 1 ×	– 1 × – –	– – – 1 ×	1 × – – –	– – 1 × –
DILM80(...) ... DILM170	2 × 2 × 2 × – –	2 × – – 2 × 2 ×	– – – – 1 ×	– – – 1 × –	– – 1 × – –	– – 1 × – –
DILM185 ... DILM1600	2 ×	2 ×	–	–	–	–
DILH1400 ... DILH2000	2 ×	2 ×	–	–	–	–

Contactors DILM, DILH



Notes Side mounting auxiliary contacts



- ① DILM40 – DILM72
- ② DILM80 – DILH2000

- Positive action contacts according to IEC/EN 60947-5-1 Appendix L, inside the auxiliary contact module (not N/O early close and N/C late open)
- Auxiliary contacts can be used as mirror contacts according to IEC/EN 60947-4-1 Appendix F (not N/C late open)
- No auxiliary contact is possible between two contactors with mechanical interlock.
- 2 auxiliary contacts DILM1000-XHI11-SI are already built into the contactors DILM185/22 to DILH2000/22.

Ordering Contactors for capacitors



DILK

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DILK contactors for capacitors

Three-phase capacitors 50 – 60 Hz			
Open			
230 V	50 Hz	525 V	690 V
kVA _r	kVA _r	kVA _r	kVA _r

Contact sequence

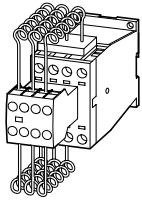
Part no.
Article no.

Price
see price
list

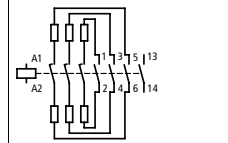
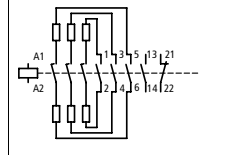
Std. pack

With series resistors without quick-discharge resistor

Basic units



7.5	12.5	16.7	20
11	20	25	33.3
15	25	33.3	40
20	33.3	40	55
25	50	65	85



DILK12-11(230V50HZ)
293988

DILK20-11(230V50HZ)
294010

DILK25-11(230V50HZ)
294032

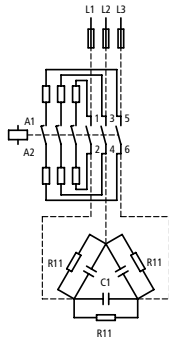
DILK33-10(230V50HZ)
294054

DILK50-10(230V50HZ)
294076

1 off

Notes

Weld-resistant for capacitors with inrush current peaks up to $180 \times I_N$



Accessories

Enclosure totally insulated

Accessories → 5/58

Further actuating voltages → 5/58

In the case of group compensation multi-stage capacitor banks are connected to the mains, as required. In the process, transient currents of up to $180 \times I_e$ can flow between the capacitors.

The capacitors are pre-charged via the early-make auxiliary contacts and the fitted wire resistors, thereby reducing the inrush current. The main contacts then close after a time lag and carry the uninterrupted current.

The contactors for capacitors are weld-resistant with inrush current peaks up to $180 \times I_e$, due to their special contacts.

For the switching of choked compensation systems please see engineering notes → Engineering, Power factor Correction

Part no.	Ordering data Page	Switching duty			
		230 V kvar	400 V 420 V 440 V kvar	525 V kvar	690 V kvar
Individual compensation, open version					
DILM7	→ 5/17	1,5	3	3,5	5
DILM9	→ 5/17	2	4	4,5	6
DILM12	→ 5/17	2,5	4,5	5,5	7
DILM15	→ 5/17	2,5	4,5	5,5	7
DILM17	→ 5/17	6,5	12	14,5	19
DILM25	→ 5/17	7	13,5	16	21
DILM32	→ 5/17	7,5	14,5	17	22,5
DILM40	→ 5/17	11	20,5	24,5	32
DILM50	→ 5/17	11,5	22	26	34,5
DILM65	→ 5/17	12,5	23,5	28	37
DILM80(...)	→ 5/17	16	30,5	36,5	48
DILM95	→ 5/17	18	34	41	54
DILM115	→ 5/17	24	46	54,5	72
DILM150	→ 5/17	28	53	63,5	83,5
DILM185	→ 5/25	87	150	190	150
DILM300	→ 5/25	115	200	265	200
DILM580	→ 5/25	175	300	400	300
Group compensation, with choke, open version					
DILM7	→ 5/17	4	7	7,5	12
DILM9	→ 5/17	5	8	10	14
DILM12	→ 5/17	5,5	10	12	16
DILM15	→ 5/17	5,5	10	12	16
DILM17	→ 5/17	7,5	18	20	28
DILM25	→ 5/17	10	20	23	30
DILM32	→ 5/17	12,5	25	25	32
DILM40	→ 5/17	15	30	30	40
DILM50	→ 5/17	20	40	40	48
DILM65	→ 5/17	25	50	50	57
DILM80(...)	→ 5/17	30	60	70	90
DILM95	→ 5/17	35	70	80	104
DILM115	→ 5/17	50	95	100	125
DILM150	→ 5/17	55	115	115	152
DILM185	→ 5/25	80	150	200	260
DILM225	→ 5/25	100	175	230	300
DILM250	→ 5/25	110	190	260	340
DILM300	→ 5/25	130	225	290	390
DILM400	→ 5/25	160	280	370	480
DILM500	→ 5/25	220	390	500	680
Group compensation, without choke, open version					
DILK12	→ 5/32	7.5	12.5	16.7	20
DILK20	→ 5/32	11	20	25	33.3
DILK25	→ 5/32	15	25	33.3	40
DILK33	→ 5/32	20	33.3	40	55
DILK50	→ 5/32	25	50	65	85
DILM185	→ 5/25	66	115	145	115
DILM300	→ 5/25	85	150	195	150
DILM580	→ 5/25	145	250	333	250

Notes

Use of the contactor DILM without series resistance for group compensation

When using the contactors for group compensation in a system without chokes each capacitor must have a minimum induction of approx. 6 mH to limit the switch-on peaks. This means coil of cable with 5 turns and a diameter of approx. 140 mm. The conductor cross section must correspond to the rated phase current.



DILL...

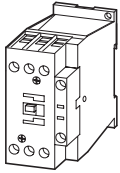
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Lighting contactors DILL

Rated operational current				Conventional free air thermal current $I_{th} = I_e$ AC-1 at 60 °C Open	Contact sequence	Part no. Article no.	Price see price list	Std. pack
AC-5a operation		AC-5b operation						
230 V	400 V	230 V	400 V					
I_e	I_e	I_e	I_e					
A	A	A	A					

Lighting contactors DILL



12	12	14	14	24		DILL 12(230V50HZ) 104402		1 off
12	12	14	14	24		DILL 12(24V50HZ) 104401		
12	12	14	14	24		DILL 12(400V50HZ) 104403		
18	18	21	21	35		DILL 18(230V50HZ) 104405		
18	18	21	21	35		DILL 18(24V50HZ) 104404		
18	18	21	21	35		DILL 18(400V50HZ) 104406		
20	20	27	27	40		DILL 20(230V50HZ) 104408		
20	20	27	27	40		DILL 20(24V50HZ) 104407		
20	20	27	27	40		DILL 20(400V50HZ) 104409		



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	DIL	L12	L18	L20	M7	M9	M12	M17	M25	M32	M40	M50
Permissible compensation capacitance	C_{max} [μ F]	470	470	470	47	80	100	220	330	470	470	500
Filament bulbs	I_e [A]	14	21	27	6	7.5	10	14	21	27	33	42
Mercury blended lamps	I_e [A]	12	16	23	5	6.5	8.5	12	16	23	30	38
Fluorescent lamps, conventional choke starter circuit	I_e [A]	20	26	35	9	10	15	20	26	35	41	45
Fluorescent lamps, duo circuit (series compensated)	I_e [A]	20	26	35	5.5	8	13	15	22.5	29	36	47
Electronic upstream devices	I_e [A]	12	18	20	5	6.5	8.5	12	17.5	22.5	28	35
High-pressure lamps	I_e [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
Metal-halide lamps	I_e [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
High-pressure sodium lamps	I_e [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
Low-pressure sodium lamps	I_e [A]	7.5	10	12	3	4	6	7.5	10	12	15	22

	DIL	M65	M80	M95	M115	M150	M185	M225	M250	M300	M400	M500
Permissible compensation capacitance	C_{max} [μ F]	500	550	620	830	970	2055	2300	2600	3000	3250	3500
Filament bulbs	I_e [A]	55	67	79	95	125	153	187	208	249	332	415
Mercury blended lamps	I_e [A]	45	65	67	80	110	123	150	167	200	266	332
Fluorescent lamps, conventional choke starter circuit	I_e [A]	55	95	100	125	145	207	237	263	300	375	525
Fluorescent lamps, duo circuit (series compensated)	I_e [A]	59	71	95	100	138	186	213	236	270	338	473
Electronic upstream devices	I_e [A]	45.5	56	66.5	80.5	105	130	158	175	210	280	350
High-pressure mercury vapour lamps	I_e [A]	36	55	60	80	95	138	158	175	200	250	350
Metal-halide lamps	I_e [A]	36	55	60	80	95	138	158	175	200	250	350
High-pressure sodium lamps	I_e [A]	36	55	60	80	95	138	158	175	200	250	350
Low-pressure sodium lamps	I_e [A]	25	35	40	50	70	100	111	123	140	175	245

With compensated lamps the total of the capacities must not exceed the max. permissible capacitor load (C_{max}) of the contactor.



SDAINL

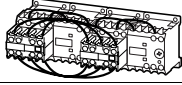
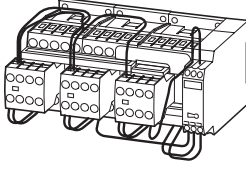
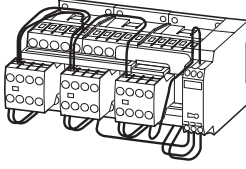
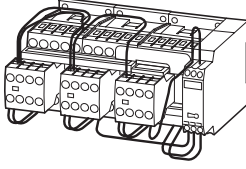
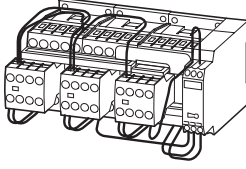
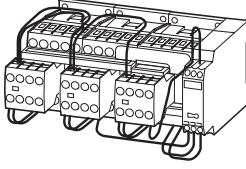
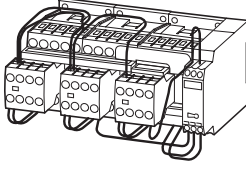
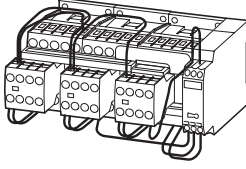
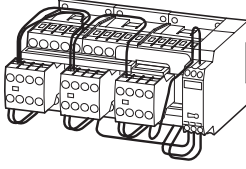
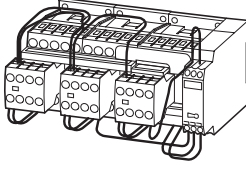
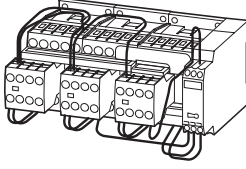
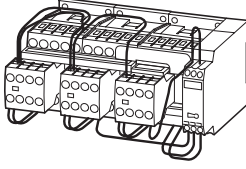
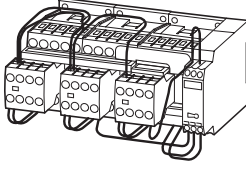
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Rated operational current AC-3	Max. rating for three-phase motors, 50 – 60 Hz				Max. changeover time
	220 V 230 V	380 V 400 V	500 V	660 V 690 V	
I_e	P	P	P	P	s
A	kW	kW	kW	kW	

Part no. Article no.	Price see price list	Std. pack
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Star-delta combinations

Operating frequency
max. 30 starts/hour
AC operation

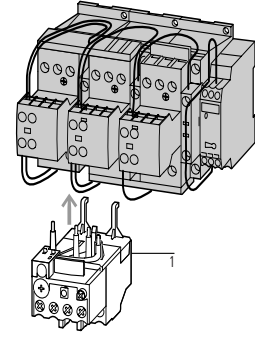
	12	12	12	16	16	22	22	30	30	45	45	55	55
	4	3	3	4	4	5.5	5.5	7.5	7.5	11	11	15	15
	5.5	5.5	5.5	7.5	7.5	11	11	18.5	18.5	22	22	30	30
	5.5	5.5	5.5	7.5	7.5	11	11	18.5	18.5	22	22	30	30
	7.5	7.5	7.5	11	11	11	11	18.5	18.5	22	22	30	30
	7.5	7.5	7.5	11	11	11	11	18.5	18.5	22	22	30	30
	11	11	11	15	15	11	11	18.5	18.5	22	22	30	30
	11	11	11	15	15	11	11	18.5	18.5	22	22	30	30
	18.5	18.5	18.5	22	22	11	11	18.5	18.5	22	22	30	30
	18.5	18.5	18.5	22	22	11	11	18.5	18.5	22	22	30	30
	22	22	22	30	30	11	11	18.5	18.5	22	22	30	30
	22	22	22	30	30	11	11	18.5	18.5	22	22	30	30
	30	30	30	37	37	11	11	18.5	18.5	22	22	30	30
	30	30	30	37	37	11	11	18.5	18.5	22	22	30	30

1 off

<http://catalog.moeller.net> Moeller HPL0211-2007/2008

SDAINL

Individual components of the combination				Spare auxiliary contacts			Notes
Mains contactor Q11	Delta contactor Q15	Star contactor Q13	Timing relay K1	Q11	Q13	Q15	
Part no.	Part no.	Part no.	Part no.				

DILEM-10 + 22DILEM	DILEM-01	DILEM-10 + 02DILEM	DILET		-	-	
DILM7-10 + DILA-XHI20	DILM7-01 + DILA-XHI20	DILM7-01 + DILA-XHI20	ETR4-51				
DILM7-10 + DILA-XHI20	DILM7-01 + DILA-XHI20	DILM7-01 + DILA-XHI20					
DILM9-10 + DILA-XHI20	DILM9-01 + DILA-XHI20	DILM7-01 + DILA-XHI20					
DILM9-10 + DILA-XHI20	DILM9-01 + DILA-XHI20	DILM7-01 + DILA-XHI20					
DILM12-10 + DILA-XHI20	DILM12-01 + DILA-XHI20	DILM7-01 + DILA-XHI20					
DILM12-10 + DILA-XHI20	DILM12-01 + DILA-XHI20	DILM7-01 + DILA-XHI20					
DILM17-10 + DILA-XHI20	DILM17-01 + DILA-XHI20	DILM17-01 + DILA-XHI20					
DILM17-10 + DILA-XHI20	DILM17-01 + DILA-XHI20	DILM17-01 + DILA-XHI20					
DILM25-10 + DILA-XHI20	DILM25-01 + DILA-XHI20	DILM17-01 + DILA-XHI20					
DILM25-10 + DILA-XHI20	DILM25-01 + DILA-XHI20	DILM17-01 + DILA-XHI20					
DILM32-10 + DILA-XHI20	DILM32-01 + DILA-XHI20	DILM25-01 + DILA-XHI20					
DILM32-10 + DILA-XHI20	DILM32-01 + DILA-XHI20	DILM25-01 + DILA-XHI20					

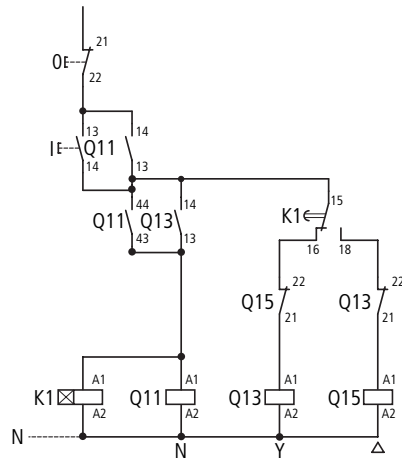
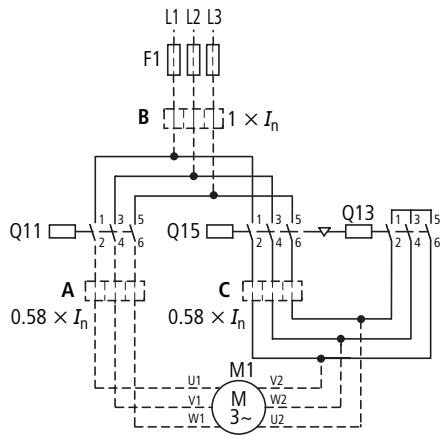
Accessories
1 Overload relay → 6/7
Accessories → 5/42

Main circuit:
Depending on the coordination type required (i.e. Type "1" or Type "2") it must be established whether the fuse protection and the input wiring for the mains contactor and delta contactor are to be common or separate.

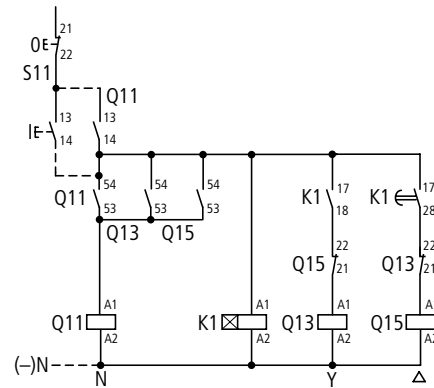
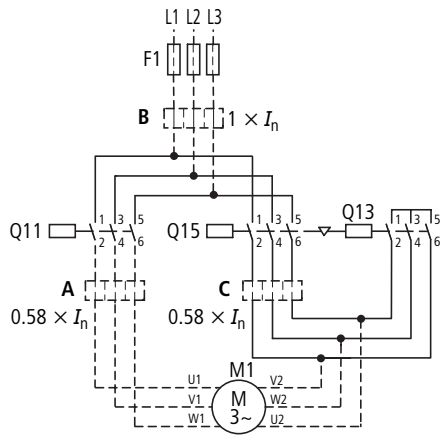
Circuit diagram → Engineering

Circuit diagrams, Star-delta combinations

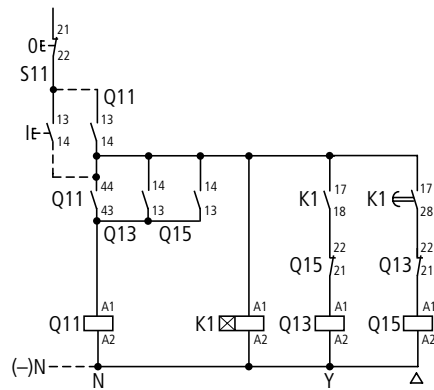
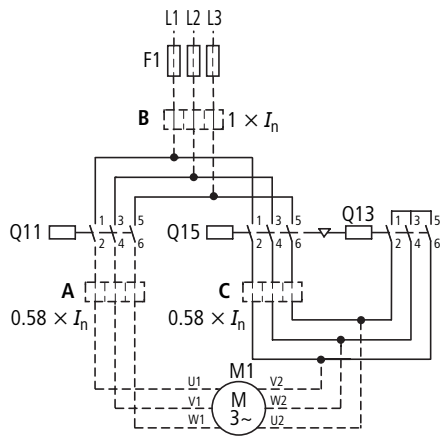
SDAINLEM



SDAINLM12...SDAINLM55



SDAINLM70...SDAINLM260



Overload relay settings

- A: $I_N \times 0.58$
Motor protected in Y and Δ - positions
- B: $I_N \times 1$
Only partial motor protection in Y position
- C: $I_N \times 0.58$
Motor not protected in Y position

Starting

- ≤ 15 s
- 15 – 40 s
- > 40 s

Timing relay set to approx. 10 s

Main circuit:

Depending on the coordination type required (i.e. Type "1" or Type "2") it must be established whether the fuse protection and the input wiring for the mains contactor and delta contactor are to be common or separate.

Contactor combinations



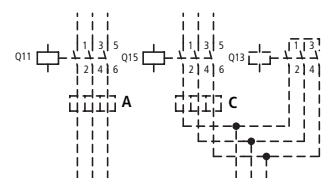
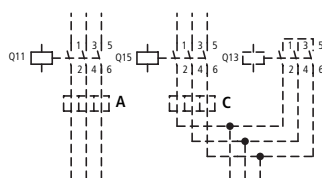
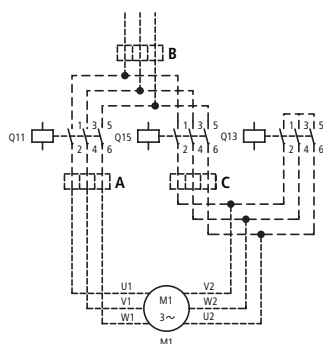
Components for self-assembly of star-delta combinations

Maximum operational rating of AC motors 50 - 60 Hz					Changeover time ¹⁾				Individual components of the combination				Spare auxiliary contacts		
AC-3								Coil to EN 50005 Switching element to EN 50005 and EN 50012							
230 V	400 V	500 V	690 V	1000 V				Mains contactor Q11	Delta contactor Q15	Star contactor Q13	Timing relay K1	Q11	Q11	Q13	
kW	kW	kW	kW	kW	up to 12 s	up to 20 s	up to 30 s	Part no. DIL	Part no. DIL	Part no. DIL	Part no.				
90	160	200	250	132	●	●	●	M185/22	M185/22	4M115/22	ETR4-51				
110	200	250	315	160	●	●		M225/22	M225/22	4AM145/22	ETR4-51				
132	250	315	400	200	●	●	●	M250/22	M250/22	M185/22	ETR4-51				
160	300	355	450	200	●	●	●	M300/22	M300/22	M185/22	ETR4-51				
200	355	450	560	220	●	●		M400/22	M400/22	M250/22	ETR4-51				
250	450	560	600	220	●	●	●	M500/22	M500/22	M300/22	ETR4-51				
300	560	710	900	355	●	●	●	M580/22	M580/22	M400/22	ETR4-51				
350	630	750	950	355	●	●	●	M650/22	M650/22	M400/22	ETR4-51				
400	710	900	1200	1400	●	●	●	M750/22	M750/22	M580/22	ETR4-51				
450	800	950	1300	1400	●	●	●	M820/22	M820/22	M580/22	ETR4-51				
560	1000	1200	1700	1700	●	●	—	M1000/22	M1000/22	M650/22	ETR4-51				

Notes ¹⁾ Longer changeover times on request

Components for self-assembly

Notes



Overload relay settings

Timing relay set to approx. 10 s

I_N

Starting

Main circuit:
Depending on the coordination type required (i.e. Type "1" or Type "2") it must be established whether the fuse protection and the input wiring for the mains contactor and delta contactor are to be common or separate.

A × 0.58
Motor protection in Y and Δ position

≤ 15 s

B × 1
in Y position only limited motor protection

15 – 40 s

Control circuit:
If the combinations are to be used within the scope of IEC/EN 60 204 Part 1, VDE 0113 Part 1, then Point 9.1.1 regarding the supply of control circuits, must be observed.

C × 0.58
no motor protection in Y position

> 40 s



The CMD contactor monitoring device



General

For safety conform switch-off to safety category 3 and 4 according to EN 954-1, at the moment two contactors must be used in series. Especially with larger contactors this is an expensive solution.

Application

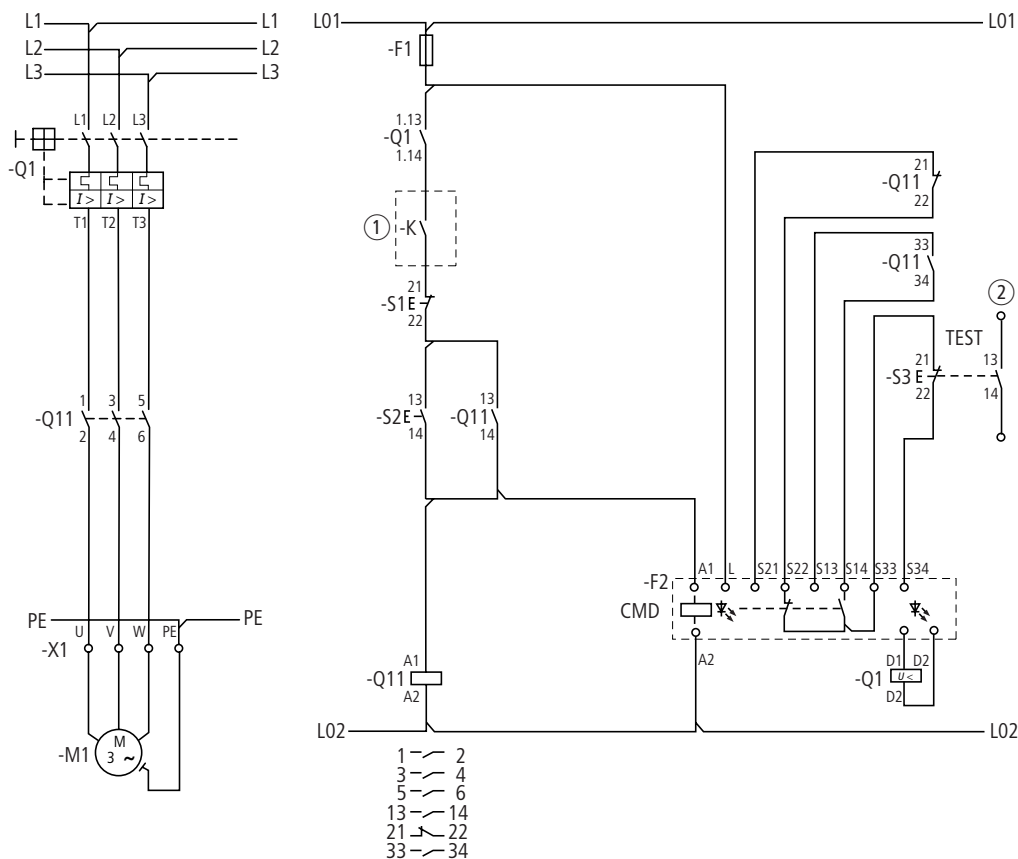
This is where the CMD can be used. The function of the CMD is to monitor the main contacts of a contactor against welding. For this the control voltage of the contactor

is compared with the state of the main contacts which is reliably monitored using a mirror contact (IEC EN 60947-4-1 Appendix F).

If the coil is de-energised and the contactor does not drop out the CMD trips the upstream circuit-breaker/motor-protective circuit-breaker/switch-disconnector via an undervoltage release.

The CMD is safety conform designed so that in safety conform combination with a circuit-breaker/motor-protective circuit-breaker/switch disconnector the reliable switch off in the case of a "welded contactor" can be guaranteed. In this application it replaces the series connection of a second contactor. As a component it conforms to safety category 3 according to EN 954-1 and EN ISO 13849.

DOL starters

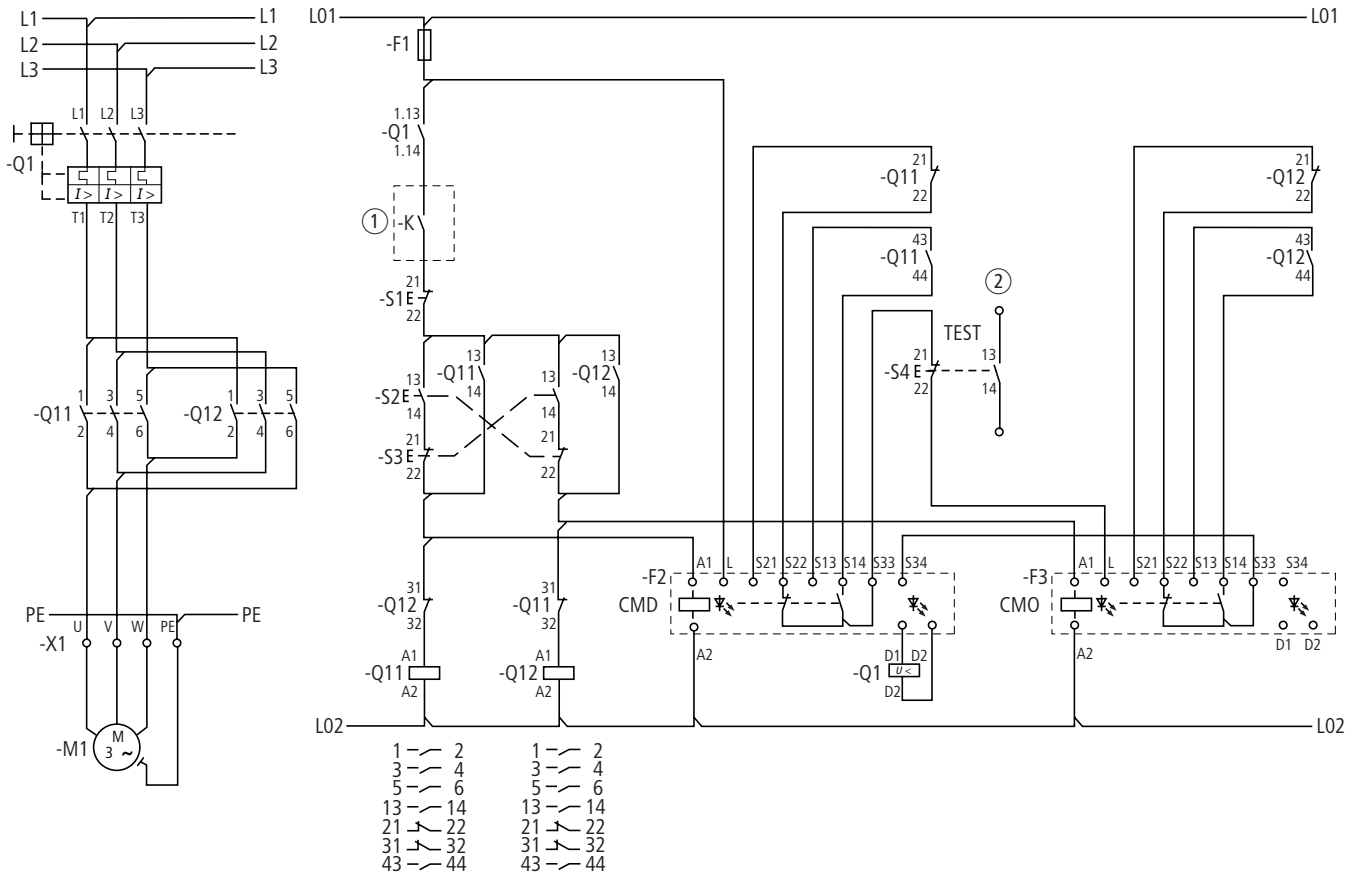


①

②

CMD

Reversing starters



- ① Switching by safety relay or safety PLC
- ② Signal contact to PLC evaluation

Mounting

- Contactors:
 - DILEM
 - DILM7 ... DILM150
 - DILM185(-S) ... DILM500(-S):
 - DILM580 ... DILM1600
 - DILH1400 ... DILH2000
 - SE-1A-PKZ2 and S-PKZ2

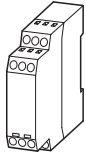
Auxiliary contact requirements per contactor:

	CMD	Self-latching	Feedback circuit	Electrical interlock
DOL starters	1 N/O + 1 N/C	1 N/O	1 B	
Reversing starters	1 N/O + 1 N/C	1 N/O	1 B	1 B

For the wiring of the CMD the auxiliary N/C contact, mirror contact must be according to IEC/EN 60947-4-1 and the auxiliary N/O contact must be forced opening according to IEC/EN 60947-5-1. Also the auxiliary N/C contact for the feedback circuit must have a mirror contact function according to IEC/EN 60947-4-1.

- Motor-protective circuit-breakers/circuit-breakers:
 - PKZ2 + U-PKZ2(18VDC)
 - NZM1 + NZM1-XUVL
 - NZM2 + NZM2/3-XUVL
 - NZM3 + NZM2/3-XUVL
 - NZM4 + NZM4-XUVL
 - N1 + NZM1-XUVL
 - N2 + NZM2/3-XUVL
 - N3 + NZM2/3-XUVL
 - N4 + NZM4-XUVL

Ordering

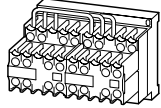
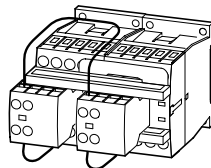
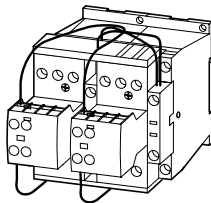
	Part no. Article no.	Price see price list	Std. pack
CMD contactor monitoring device			
	CMD(24VDC) 106170		1 off
	CMD(110-120VAC) 106171		1 off
	CMD(220-240VAC) 106172		1 off































Rated operational current	Max. rating for three-phase motors, 50 – 60 Hz						Part no. Article no.	Price see price list	Std. pack
	AC-3		AC-4						
	380 V 400 V 380 V 400 V	220 V 230 V	380 V 400 V	660 V 690 V	220 V 230 V	380 V 400 V			
I_e	P	P	P	P	P	P			
A	kW	kW	kW	kW	kW	kW			

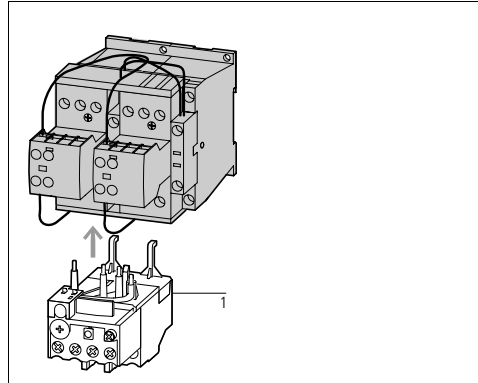
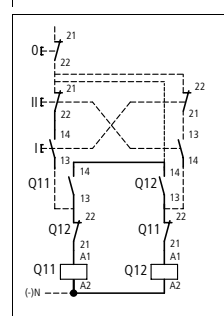
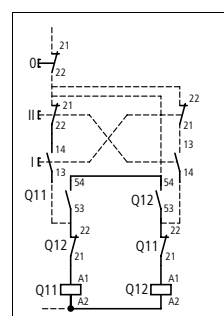
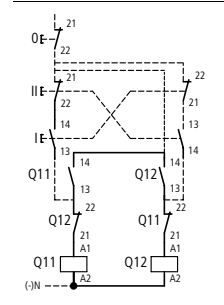
DIUL reversing combinations

AC operation

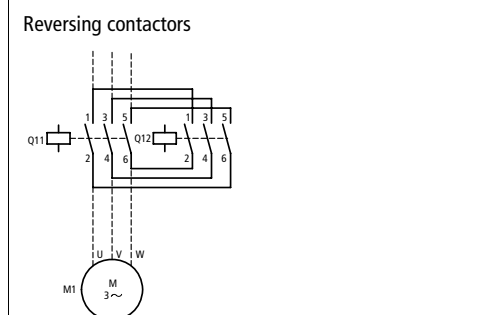
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	9	2.2	4	4	1.5	3	3	DIULEM/21/MV-G(24VDC) 214655	1 off
	7	2.2	3	3.5	1	2.2	2.9	DIULM7/21(230V50HZ) 278061	1 off
	7	2.2	3	3.5	1	2.2	2.9	DIULM7/21(24VDC) 107021	1 off
	9	2.5	4	4.5	1.5	2.5	3.6	DIULM9/21(230V50HZ) 278086	1 off
	9	2.5	4	4.5	1.5	2.5	3.6	DIULM9/21(24VDC) 107022	1 off
	12	3.5	5.5	6.5	2	3	4.4	DIULM12/21(230V50HZ) 278111	1 off
	12	3.5	5.5	6.5	2	3	4.4	DIULM12/21(24VDC) 107023	1 off
	18	5	7.5	11	2.5	4.5	6.5	DIULM17/21(230V50HZ) 278136	1 off
	18	5	7.5	11	2.5	4.5	6.5	DIULM17/21(RDC24) 107024	1 off
	25	7.5	11	14	3.5	6	8.5	DIULM25/21(230V50HZ) 278161	1 off
	25	7.5	11	14	3.5	6	8.5	DIULM25/21(RDC24) 107025	1 off
	32	10	15	17	4	7	10	DIULM32/21(230V50HZ) 278186	1 off
	32	10	15	17	4	7	10	DIULM32/21(RDC24) 107026	1 off
	40	12.5	18.5	23	5	9	12	DIULM40/11(230V50HZ) 278211	1 off
	50	15.5	22	30	6	10	14	DIULM50/11(230V50HZ) 278236	1 off
	65	20	30	35	7	12	17	DIULM65/11(230V50HZ) 278261	1 off

Individual components of the combination	Spare auxiliary contacts		Notes	Notes
Contactor Q11	Contactor Q12	Q11	Q12	Mechanical interlock
Part no.	Part no.			

DILEM-10 + 11DILEM	DILEM-10 + 11DILEM			+
DILEM-10-G + 11DILEM	DILEM-10-G + 11DILEM			+
DILM7-01 + DILA-XHI20	DILM7-01 + DILA-XHI20			+
DILM7-01 + DILA-XHI20	DILM7-01 + DILA-XHI20			+
DILM9-01 + DILA-XHI20	DILM9-01 + DILA-XHI20			+
DILM9-01 + DILA-XHI20	DILM9-01 + DILA-XHI20			+
DILM12-01 + DILA-XHI20	DILM12-01 + DILA-XHI20			+
DILM12-01 + DILA-XHI20	DILM12-01 + DILA-XHI20			+
DILM17-01 + DILA-XHI20	DILM17-01 + DILA-XHI20			+
DILM17-01 + DILA-XHI20	DILM17-01 + DILA-XHI20			+
DILM25-01 + DILA-XHI20	DILM25-01 + DILA-XHI20			+
DILM25-01 + DILA-XHI20	DILM25-01 + DILA-XHI20			+
DILM32-01 + DILA-XHI20	DILM32-01 + DILA-XHI20			+
DILM32-01 + DILA-XHI20	DILM32-01 + DILA-XHI20			+
DILM40 + DILM150-XHI11	DILM40 + DILM150-XHI11	-	-	+
DILM50 + DILM150-XHI11	DILM50 + DILM150-XHI11	-	-	+
DILM65 + DILM150-XHI11	DILM65 + DILM150-XHI11	-	-	+

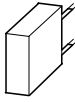

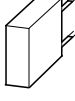

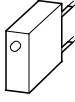
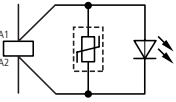
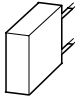



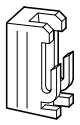
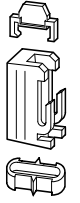

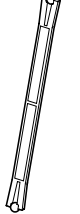
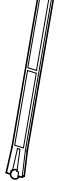
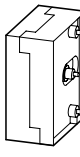

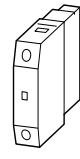

Accessories
1 Overload relay → 6/7
Accessories → 5/42



Reversing contactors
DIULM7/21 to DIULM150/11 with mechanical interlock
DIULM80/11 to DIULM150/11 on mounting plates



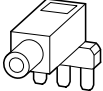
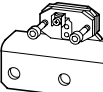
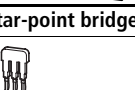





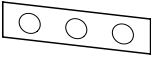

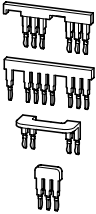
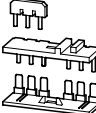
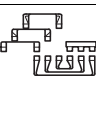

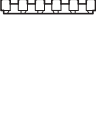




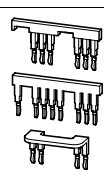
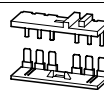
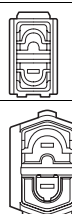
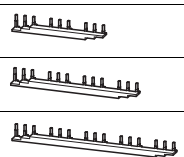
Voltage	For use with	Contact sequence	Part no. Article no.	Price see price list	Std. pack	Notes		
U_s V								
Suppressors								
RC suppressors								
	24 – 48 AC 110 – 240 AC 240 – 500 AC	DILM7 – DILM15 DILMP20 DILA 	DILM12-XSPR48 281199 DILM12-XSPR240 281200 DILM12-XSPR500 281201		10 off	For AC operated contactors 50 – 60 Hz. On DC operated contactor relays and on DILM115 and DILM150 the suppressor circuit is built-in. Note drop-out delay		
	24 – 48 AC 110 – 240 AC 240 – 500 AC	DILM17 – DILM32	DILM32-XSPR48 281202 DILM32-XSPR240 281203 DILM32-XSPR500 281204					
	24 – 48 AC 110 – 240 AC 240 – 500 AC	DILM40 – DILM95	DILM95-XSPR48 281205 DILM95-XSPR240 281206 DILM95-XSPR500 281207					
Varistor suppressors								
	24 – 48 AC 48 – 130 AC 130 – 240 AC 240 – 500 AC	DILM7 – DILM15 DILMP20 DILA 	DILM12-XSPV48 281208 DILM12-XSPV130 281209 DILM12-XSPV240 281210 DILM12-XSPV500 281211		10 off		For AC operated contactors 50 – 60 Hz. On DC operated contactor relays and on DILM115 and DILM150 the suppressor circuit is built-in. Note drop-out delay	
	24 – 48 AC 48 – 130 AC 130 – 240 AC 240 – 500 AC	DILM17 – DILM32	DILM32-XSPV48 281212 DILM32-XSPV130 281213 DILM32-XSPV240 281214 DILM32-XSPV500 281215					
	24 – 48 AC 48 – 130 AC 130 – 240 AC 240 – 500 AC	DILM40 – DILM95	DILM95-XSPV48 281216 DILM95-XSPV130 281217 DILM95-XSPV240 281218 DILM95-XSPV500 281219					
Varistor suppressors with integrated LED								
	24 – 48 AC 130 – 240 AC	DILM7 – DILM15 DILMP20 DILA 	DILM12-XSPVL48 281220 DILM12-XSPVL240 281221		10 off			For AC operated contactors 50 – 60 Hz. On DC operated contactor relays and on DILM115 and DILM150 the suppressor circuit is built-in. Note drop-out delay
	24 – 48 AC 130 – 240 AC	DILM17 – DILM32	DILM32-XSPVL48 281222 DILM32-XSPVL240 281223					
	24 – 48 AC 130 – 240 AC	DILM40 – DILM95	DILM95-XSPVL48 281224 DILM95-XSPVL240 281225					
Free-wheel diode suppressor								
	12 – 250 DC	DILM7 – DILM15 DILMP20 DILA 	DILM12-XSPD 101672		10 off	In addition to the built-in suppressor circuit for DC actuated contactors. Prevents negative breaking voltage when contactors are used in combination with a safety PLC.		

	For use with	Contact sequen.	Part no. Article no.	Price see price list	Std. pack	Notes
Links						
	DILM7 – DILM72 DILA	–	DILM32-XVB 281227		50	For mechanically arranging contactors in combinations. Distance between contactors 0 mm
	DILM80 – DILM150	–	DILM150-XVB 281226		10 off	
Mechanical interlocks						
	DILM7 – DILM15 DILMP20 DILA	–	DILM12-XMV 281196		1 off	For two contactors with AC or DC operation arranged vertically or horizontally Distance between contactors 0 mm, including contactor connector Mechanical lifespan 2.5 x 10 ⁶ operations. Additional auxiliary contact module possible → 5/28.
	DILM17 – DILM32	–	DILM32-XMV 281197		1 off	
	DILM40 – DILM72	–	DILM65-XMV 281198			
	DILM80 – DILM170	–	DILM150-XMV 240081			
	DILM185, DILM225, DILM250, DILM300, DILM400, DILM500	–	DILM500-XMV 208289		1 off	For two contactors with the same or different magnet system which are horizontally or vertically mounted, mechanical lifespan 5 × 10 ⁶ operations, between mechanical interlock and contactor no auxiliary contact possible. Combination with adjacent sizes only (DIL3... -DIL4... or DILM(C)185... -DILM(C)500) Distance between contactors: DIL3M80-4AM145 10 mm DILM(C)185-M(C)500 15 mm
	DILM580, DILM650 DILM750, DILM820, DILM1000	–	DILM820-XMV 208288		1 off	For contactors with the same or different magnet system mounted horizontally or vertically, mechanical lifespan 5 × 10 ⁶ operations. No auxiliary contact possible between mechanical interlock and contactor. DILM820-XMV consists of interlock element and mounting plate.
Set of spare parts for mechanical interlock						
–	DILM80 – DILM170		DILM150-XMVE 107020		1 off	Content: ball for mechanical interlock incl. contactor connector.
4th pole						
Only for AC 1 load, up to two auxiliary contacts can be fitted; suitable for isolating non-earthed and poorly earthed neutral conductors.						
	DILM40		NDIL0M 062006		1 off	<i>I_e</i> AC-1 Open/Enclosed 35 A/30 A
	DILM40		NDIL1M 060243			<i>I_e</i> AC-1 Open/Enclosed 55 A/44 A
	DILM50 DILM65 DILM72		NDIL2M 060264			<i>I_e</i> AC-1 Open/Enclosed 75 A/60 A

Contactors DILM, DILH
Contactor relays



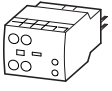
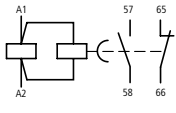
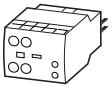
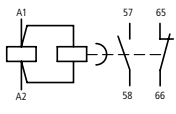
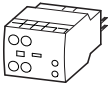
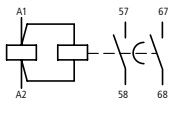
For use with	Contact sequence	Part no. Article no.	Price see price list	Std. pack	Notes		
Paralleling links for main contacts							
Consisting of two paralleling links							
	DILM7 – DILM15	–	DILM12-XP1 281193	5 off	4th pole can be broken off AC1 current carrying capacity of the open contactor increases by a factor of 2.5 Protected against accidental contact in accordance to VDE 0106 part 100 terminal capacity for DILM...-XP1 → Technical data A cover is included with DILM185-XP1 for protection against accidental contact.		
	DILM17 – DILM32	–	DILM32-XP1 281194				
	DILM40 – DILM72	–	DILM65-XP1 281195				
	DILM80 – DILM170	–	DILM150-XP1 284769				
	DILM185		DILM185-XP1 208292				
Star-point bridges							
	DILM7 – DILM15		DILM12-XS1 281190	20 off	<ul style="list-style-type: none"> • Tool-less plug connection type • As auxiliary contactor use DILA-XHIT... → 5/29 		
	DILM17 – DILM32		DILM32-XS1 281191				
	DILM40 – DILM72		DILM65-XS1 281192				
	DILM80 – DILM170		DILM150-XS1 284768				
	DILM185 – DILM400		DILM400-XS1 208291				
	DILM500		DILM500-XS1 208290	One shroud included for protection against accidental contact.			
Star-delta wiring kits							
Main current wiring for star-delta combination - including star-point bridge							
	DILM7/9/12/15 mains contactor DILM7/9/12/15 delta contactor DILM7/9/12/15 star contactor		DILM12-XSL 283130	1 off	<ul style="list-style-type: none"> • Tool-less plug connection type • as auxiliary contactor use DILA-XHIT... → 5/29 The following control cables are integrated in addition to electrical interlock: <ul style="list-style-type: none"> • Q13: A1 – Q15: 21 • Q13: 21 – Q15: A1 • Q13: A2 – Q15: A2 		
	DILM17/25/32 mains contactor DILM17/25/32 delta contactor DILM17/25/32 star contactor		DILM32-XSL 283131				
	DILM40/50/65 mains contactor DILM40/50/65 delta contactor DILM40/50/65 star contactors		DILM65-XSL 101058				
	DILM 80/95 mains contactor DILM80/95 delta contactor DILM50/65 star contactor		DILM95-XSL 101486				
	DILM115/150 mains contactor DILM115/150 delta contactor DILM80/95/115 star contactor		DILM150-XSL 101487				
	DILM 185/225 mains contactor DILM185/225 delta contactor DILM115/150 star contactor		DILM225-XSL 101488				
	DILM250 mains contactor DILM250 delta contactor DILM185 star contactor		DILM250-XSL 101489				
	DILM 300/400 mains contactor DILM300/400 delta contactor DILM185/225/250 star contactor		DILM400-XSL 101680				
consists of the connection links:							
<ul style="list-style-type: none"> • Mains-delta contactor • Delta - star contactor • Star-point bridge 							
consists of the connection links:							
<ul style="list-style-type: none"> • Delta - star contactor • Star-point bridge 							


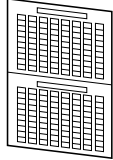
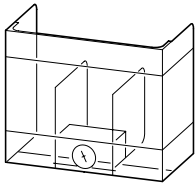
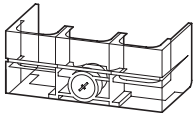
	For use with	Part no. Article no.	Price see price list	Std. pack	Notes
Reversing starter wiring kits					
Main current wiring for reversing combination					
	DILM7 DILM9 DILM12	DILM12-XRL 283108		1 off	<ul style="list-style-type: none"> • Tool-less plug connection type • as auxiliary contactor use DILA-XHIT... → 5/29 The following control cables are integrated in addition to electrical interlock: <ul style="list-style-type: none"> • Q11: A1 – Q12: 21 • Q11: 21 – Q12: A1 • Q11: A2 – Q12: A2
	DILM17 DILM25 DILM32	DILM32-XRL 283109			
	DILM40 DILM50 DILM65 DILM65	DILM65-XRL 101057			
	DILM80 DILM95 DILM115 DILM150	DILM150-XRL 101681			
	DILM185 DILM225 DILM250	DILM250-XRL 101682			
	DILM300 DILM400	DILM400-XRL 101683			
IP2X cover					
	DILM40 DILM50 DILM65 DILM72	DILM65-XIP2X 106491		8 off	6 shrouds are necessary per contactor The shrouding kit consists of 8 shrouds A shroud set consists of 8 covers
	DILM80 DILM95 DILM115 DILM150 DILM170	DILM150-XIP2X 106492		8 off	
Three-phase commoning links					
Protected against accidental contact, short-circuit proof = 690 V, I _u = 35 A, Can be extended by rotating by installation					
	DILM7 DILM9 DILM12 DILM15	DILM12-XDSB0/3 240084		5 off	Suitable for 3 contactors, length 135 mm
		DILM12-XDSB0/4 240085			Suitable for 4 contactors, length 180 mm
		DILM12-XDSB0/5 240086			Suitable for 5 contactors, length 225 mm
Incoming connection block					
-	DILM7 DILM9 DILM12 DILM15	DILM12-XEK 240083		5 off	For three-phase commoning link, protected against accidental contact, U _e = 690 V, I _u = 35 A. Connection cross section: Stranded 2.5...16 mm ² Flexible with ferrule 2.5...16 mm ² AWG14...8

Contactors DILM, DILH
Contactor relays





	For use with	Contact sequence	Part no. Article no.	Price see price list	Std. pack	Notes	
Electronic timer modules							
on-delayed Cannot be combined with front mounting auxiliary contact modules, inclusive suppressors							
	24 V AC/DC	DILM7 – DILM32 DILMP20 DILA 	DILM32-XTEE11(RA24) 101440		1 off	Time range can be selected 0.05 s...1 s 0.5 s...10 s 5 s...100 s	
	100 ... 130 V AC		DILM32-XTEE11(RAC130) 101441				
	200...240 V AC		DILM32-XTEE11(RAC240) 101442				
off-delayed Cannot be combined with front mounting auxiliary contact modules, inclusive suppressors							
	24 V AC/DC	DILM7 – DILM32 DILMP20 DILA 	DILM32-XTED11-1(RA24) 105210		1 off	Time range 0.05 s...1 s	
	24 V AC/DC		DILM32-XTED11-10(RA24) 104943				Time range 0.5 s...10 s
	24 V AC/DC		DILM32-XTED11-100(RA24) 104946				Time range 5 s...100 s
	100 ... 130 V AC		DILM32-XTED11-1(RAC130) 105211				Time range 0.05 s...1 s
	100 ... 130 V AC		DILM32-XTED11-10(RAC130) 104944				Time range 0.5 s...10 s
	100 ... 130 V AC		DILM32-XTED11-100(RAC130) 104947				Time range 5 s...100 s
	200...240 V AC		DILM32-XTED11-1(RAC240) 105212				Time range 0.05 s...1 s
	200...240 V AC		DILM32-XTED11-10(RAC240) 104945				Time range 0.5 s...10 s
	200...240 V AC		DILM32-XTED11-100(RAC240) 104948				Time range 5 s...100 s
	For star-delta applications Cannot be combined with front mounting auxiliary contact modules, inclusive suppressors						
	24 V AC/DC	DILM7 – DILM32 DILMP20 DILA 	DILM32-XTEY20(RA24) 101446		1 off	Changeover time 1...30 s Changeover interval 50 ms Circuit examples → Engineering wiring star-delta combinations with DILM32-XTEY20	
	100 ... 130 V AC		DILM32-XTEY20(RAC130) 101447				
	200...240 V AC		DILM32-XTEY20(RAC240) 101448				

For use with	Part no. Article no.	Price see price list	Std. pack	Notes
Sealable shrouds				
Transparent 	DILM32-XTE...	DILM32-XTEPLH 101449	1 off	
Device labelling				
7.5 × 17 mm Colour: yellow HKS 3 (≈ RAL 1018) 	Inscription using laser printer, plotter, marker pen, copier	XGKE-GE 207517	25 off	1 off = 1 sheet 240 labels per sheet 1 sheet = DIN A4 Can be split into two DIN A5 sheets
Covers				
Terminal cover 	DILM185 DILM225 DILM250 DILM300 DILM400 DILM500 DILM580 DILM650 DILM750 DILM820, DILM1000	DILM400-XHB 208287 DILM500-XHB 208286 DILM650-XHB 208285 DILM820-XHB 208284	1 off	Protection against direct contact with connection lugs when touched vertically from the front
Shroud for star-point bridge				
	DILM400-XS1	DILM400-XHBS1 101687	1 off	Can be combined with star-delta wiring kits DILM250-XSL and DILM400-XSL.
Extension terminals				
-	DILM80 DILM95 DILM115 DILM150 DILM170	DILM150-XZK 104486	10 off	Can be retrofitted on every main terminal of the contactor. Connection options: Max. 2 x 4 mm ² solid Max. 2 × 2.5 mm ² , flexible with ferrule

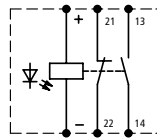
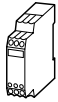


Rated operational current		Actuating voltage	Actuating current	Contact sequence	For use with	Part no. Article no.	Price see price list	Std. pack
AC-15	DC							
240 V	415 V							
I_e	I_e	I_e	U_s	I				
A	A	A	V DC	mA				

Amplifier module for separate mounting

Input with integrated suppressor for overvoltage limit

2	2	0.03	24	25	As required	ETS4-VS3 083094		1 off
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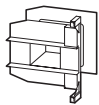
Notes

Contactor coils with rated operational current > 2 A must be actuated via the DILA mini contactor relay.
Rated operational current DC:
Making and breaking conditions DC-13, time L/R 300ms



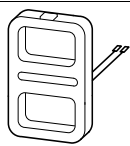
For use with	AC Part no. Article no.	Price see price list	DC Part no. Article no.	Price see price list	Std. pack	Notes
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Individual coils



DILM17 DILM25 DILM32	DILM32-XSP(230V50HZ) 281141		DILM32-XSP(RDC24)¹⁾ 281155		1 off	Other actuating voltages → 5/57
DILM40 DILM50 DILM65 DILM72	DILM65-XSP(230V50HZ) 281171		DILM65-XSP(RDC24)¹⁾ 281185			
DILM80 DILM95	DILM95-XSP(230V50HZ) 230062		DILM95-XSP(RDC24)¹⁾ 230080			Further actuating voltages * 281130 Manufactured from KW 27/2006
DILM115 DILM150 DILM170	DILM150-XSP(RAC240)¹⁾ 230112		DILM150-XSP(RDC24)¹⁾ 230115			

Electronic modules including coils



DILM185 DILM225 DILM250	DILM250-XSP/E(RA250) 208252		DILM250-XSP/E(RA250) 208252		1 off	Further actuating voltages → 5/59
DILM300 DILM400 DILM500	DILM500-XSP/E(RA250) 208256		DILM500-XSP/E(RA250) 208256			
DILM580 DILM650 DILM750 DILM820 DILM1000	DILM1000-XSP/E(RA250) 289145		DILM1000-XSP/E(RA250) 289145			
DILH1400	DILH1400-XSP/E(RAW250) 289161					
DILM185-S DILM225-S DILM250-S	DILM250-S-XSP/E(220-240V50/60HZ) 274202					
DILM300-S DILM400-S DILM500-S	DILM500-S-XSP/E(220-240V50/60HZ) 274205					

Notes

¹⁾ Including electronics module

The CMD contactor monitoring device



Contactors



General

For safety conform switch-off to safety category 3 and 4 according to EN 954-1, at the moment two contactors must be used in series. Especially with larger contactors this is an expensive solution.

Application

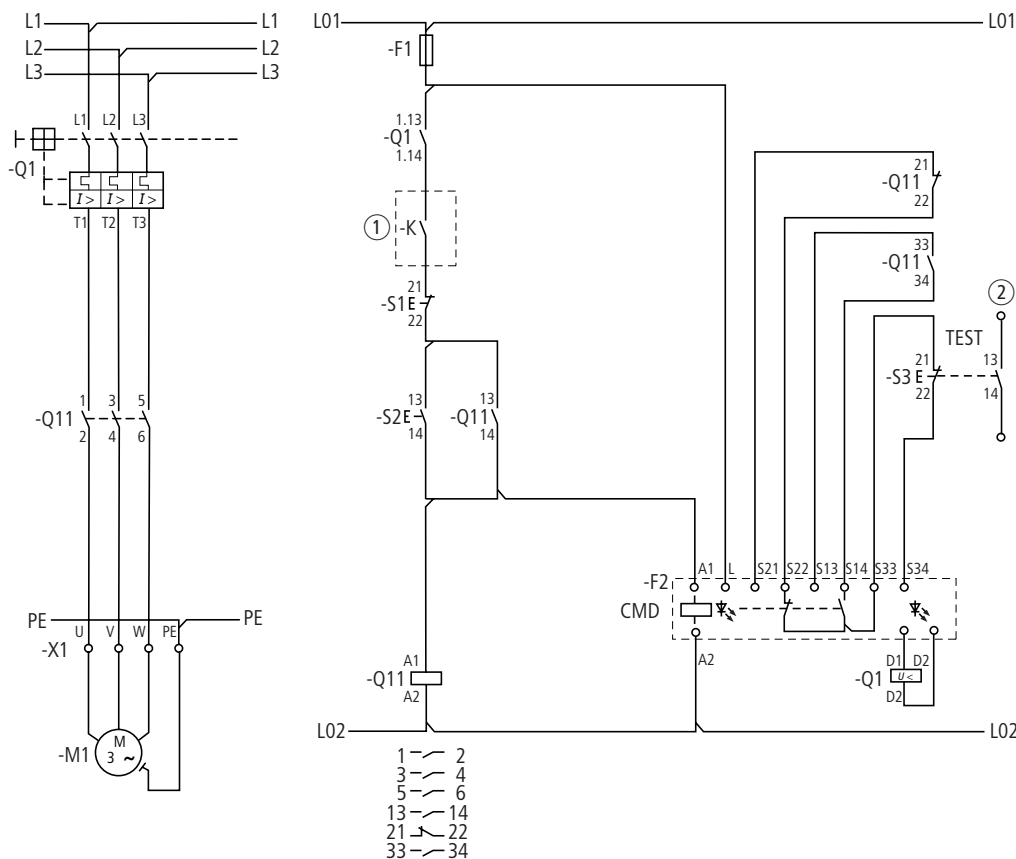
This is where the CMD can be used. The function of the CMD is to monitor the main contacts of a contactor against welding. For this the control voltage of the contactor

is compared with the state of the main contacts which is reliably monitored using a mirror contact (IEC EN 60947-4-1 Appendix F).

If the coil is de-energised and the contactor does not drop out the CMD trips the upstream circuit-breaker/motor-protective circuit-breaker/switch-disconnector via an undervoltage release.

The CMD is safety conform designed so that in safety conform combination with a circuit-breaker/motor-protective circuit-breaker/switch disconnector the reliable switch off in the case of a "welded contactor" can be guaranteed. In this application it replaces the series connection of a second contactor. As a component it conforms to safety category 3 according to EN 954-1 and EN ISO 13849.

DOL starters

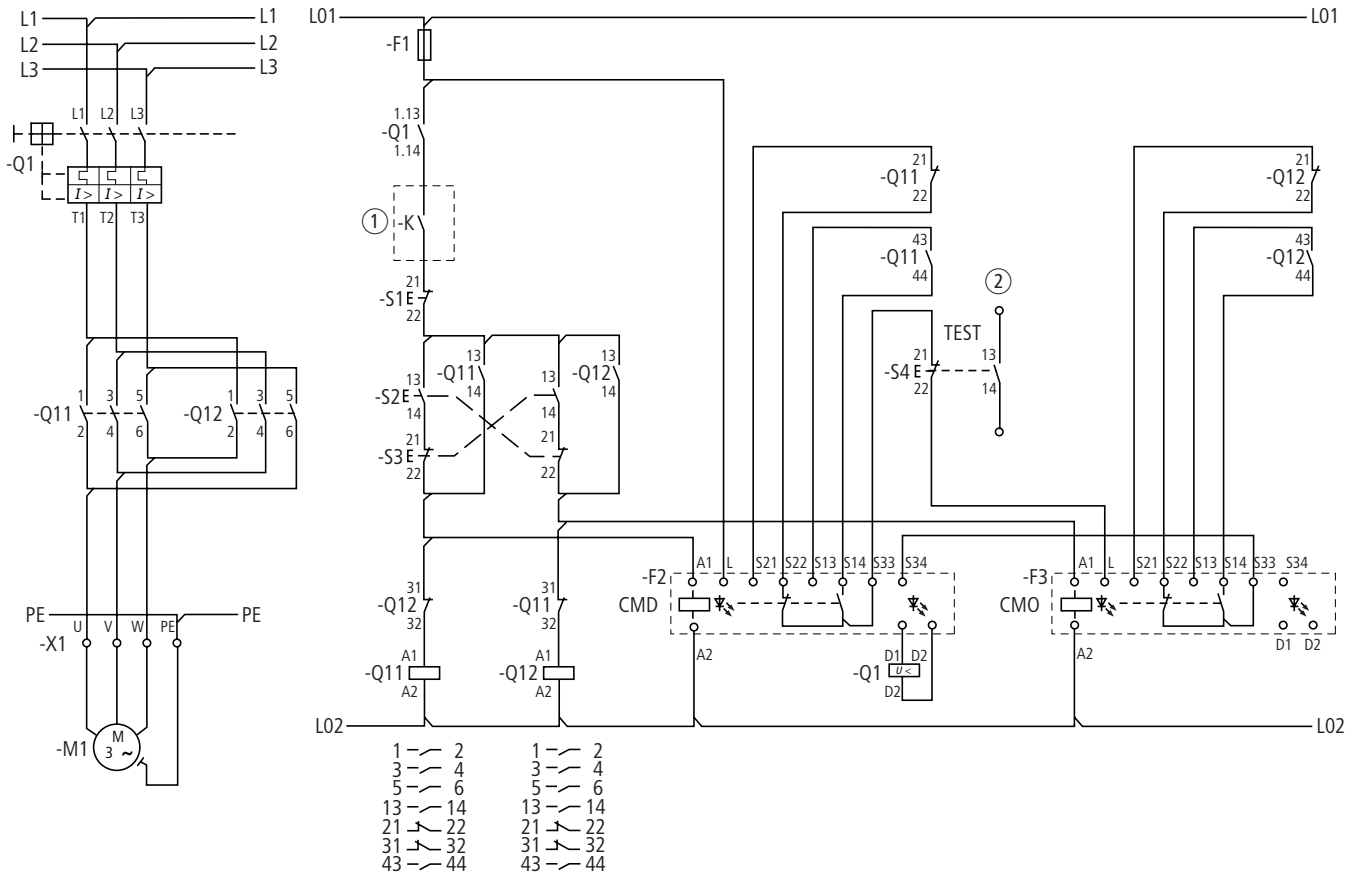


①

②

CMD

Reversing starters



- ① Switching by safety relay or safety PLC
- ② Signal contact to PLC evaluation

Mounting

- Contactors:
 - DILEM
 - DILM7 ... DILM150
 - DILM185(-S) ... DILM500(-S):
 - DILM580 ... DILM1600
 - DILH1400 ... DILH2000
 - SE-1A-PKZ2 and S-PKZ2

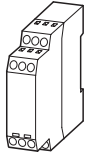
Auxiliary contact requirements per contactor:

	CMD	Self-latching	Feedback circuit	Electrical interlock
DOL starters	1 N/O + 1 N/C	1 N/O	1 B	
Reversing starters	1 N/O + 1 N/C	1 N/O	1 B	1 B

For the wiring of the CMD the auxiliary N/C contact, mirror contact must be according to IEC/EN 60947-4-1 and the auxiliary N/O contact must be forced opening according to IEC/EN 60947-5-1. Also the auxiliary N/C contact for the feedback circuit must have a mirror contact function according to IEC/EN 60947-4-1.

- Motor-protective circuit-breakers/circuit-breakers:
 - PKZ2 + U-PKZ2(18VDC)
 - NZM1 + NZM1-XUVL
 - NZM2 + NZM2/3-XUVL
 - NZM3 + NZM2/3-XUVL
 - NZM4 + NZM4-XUVL
 - N1 + NZM1-XUVL
 - N2 + NZM2/3-XUVL
 - N3 + NZM2/3-XUVL
 - N4 + NZM4-XUVL

Ordering

	Part no. Article no.	Price see price list	Std. pack
CMD contactor monitoring device			
	CMD(24VDC) 106170		1 off
	CMD(110-120VAC) 106171		1 off
	CMD(220-240VAC) 106172		1 off



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DILER, DILEM

AC	DILER-40(...)	DILER-31(...)	DILER-22(...)	DILEM-10(...)	DILEM-01(...)	DILEM4(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	see price list	see price list	see price list	see price list	see price list	see price list
24 V 50 Hz	010094	010251	010344	010005	010086	014754
48 V 50Hz	010190	010044	010201	010020	010294	–
240V 50Hz	010478	010300	010138	010032	010151	014305
115V 60Hz	010270	010204	010211	010024	010470	–
42V 50Hz, 48V 60Hz	–	–	–	051782	051791	–
110V 50Hz, 120V 60Hz	051756	051765	051774	051783	051792	051801
190V 50Hz, 220V 60Hz	051757	051766	051775	051784	051793	–
220V 50Hz, 240V 60Hz	051758	051767	051776	051785	051794	051803
230V 50Hz, 240V 60Hz	051759	051768	051777	051786	051795	051804
380V 50Hz, 440V 60Hz	051760	051769	051778	051787	051796	–
400V 50Hz, 440V 60Hz	051761	051770	051779	051788	051797	051806
415V 50Hz, 480V 60Hz	051762	051771	051780	051789	–	–
24V 50/60Hz	021924	021594	021704	021417	020402	022044
42V 50/60Hz	033459	029869	029433	032174	033233	–
110V 50/60Hz	021961	021624	021871	021455	020436	–
230V 50/60Hz	052725	052509	052508	052302	051114	052506
DC	DILER-40-G(...)	DILER-31-G(...)	DILER-22-G(...)	DILEM-10-G(...)	DILEM-01-G(...)	DILEM4-G(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	see price list	see price list	see price list	see price list	see price list	see price list
12 V DC	079711	079761	080728	079594	079642	079680
24V DC	010223	010157	010042	010213	010343	012701
48V DC	010255	010205	010346	010245	010496	–
110V DC	010287	010253	010043	010309	010136	–
220V DC	010303	010269	010091	010325	010168	–

Notes

¹⁾ The article number is a combination of part no. and operating voltage
Devices with dual-voltage coils are to be ordered under a single order number.

Mini contactors, relays



Ordering Actuating voltages

xStart

DILA

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	With screw terminals			With springloaded terminals:		
	DILA-40(...)	DILA-31(...)	DILA-22(...)	DILAC-40(...)	DILAC-31(...)	DILAC-22(...)
	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
Standard voltages	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List
24V50Hz	276316	276351	276386	276431	276463	276495
240V50Hz	276318	276353	276388	–	–	–
110V50Hz 120V60Hz	276326	276361	276396	276438	276470	276502
190V50Hz 220V60Hz	276327	276362	276397	–	–	–
220V50Hz 240V60Hz	276328	276363	276398	–	–	–
230V50Hz 240V60Hz	276329	276364	276399	276441	276473	276505
380V50Hz 440V60Hz	276330	276365	276400	–	–	–
400V50Hz 440V60Hz	276331	276366	276401	–	–	–
24V50Hz/60Hz	276333	276368	276403	276445	276477	276509
42V50Hz/60Hz	276334	276369	276404	–	–	–
110V50Hz/60Hz	276335	276370	276405	–	–	–
220V50Hz/60Hz	276336	276371	276406	–	–	–
230V50Hz/60Hz	276337	276372	276407	276449	276481	276513
Special voltages other than the already shown normal voltages ²⁾	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List
...V50Hz(12-500V) ³⁾	276341	276376	276411	276453	276485	276517
...V60Hz(12-600V) ³⁾	276342	276377	276412	276454	276486	276518
DC	With screw terminals			With springloaded terminals:		
	DILA-40(...)	DILA-31(...)	DILA-22(...)	DILAC-40(...)	DILAC-31(...)	DILAC-22(...)
	Article no.	Article no.	Article no.	Article no.	Article no.	Article no.
Standard voltages	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List
24V DC	276344	276379	276414	276456	276488	276520
48V DC	276345	276380	276415	–	–	–
110V DC	276347	276382	276417	276459	276491	276523
220V DC	276348	276383	276418	276460	276492	276524
Special voltages other than the already shown normal voltages ²⁾	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List	Price See Price List
...VDC(12-250V) ³⁾	276349	276384	276419	276461	276493	276525

Notes

- 1) The article number is made up from a combination of part no. and operating voltage. Devices with dual voltage coils can be ordered under an article no.
- 2) With non-standard voltages the required actuating voltage from the defined range (...-...V) must be stated.
- 3) Minimum order quantity: 10 off



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DILM, DILMP20



AC	DILM7-10 (...)	DILM7-01 (...)	DILM9-10 (...)	DILM9-01 (...)	DILM12-10 (...)	DILM12-01 (...)	DILM15-10 (...)	DILM15-01 (...)	DILMP20 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
24 V 50 Hz	276537	276572	276677	276712	276817	276852	290045	290080	276957
240V 50Hz	276539	276574	276679	276714	276819	276854	–	–	–
42V 50Hz 48V 60Hz	276546	–	276686	–	276826	–	–	–	–
110V 50Hz 120V 60Hz	276547	276582	276687	276722	276827	276862	290055	290090	276967
190V 50Hz 220V 60Hz	276548	276583	276688	276723	276828	276863	–	–	–
220V 50Hz 240V 60Hz	276549	276584	276689	276724	276829	276864	–	–	–
230V 50Hz 240V 60Hz	276550	276585	276690	276725	276830	276865	290058	290093	276970
380V 50Hz 440V 60Hz	276551	276586	276691	276726	276831	276866	–	–	–
400V 50Hz 440V 60Hz	276552	276587	276692	276727	276832	276867	–	–	276972
415V 50Hz 480V 60Hz	276553	–	276693	–	276833	–	–	–	–
24V 50Hz/60Hz	276554	276589	276694	276729	276834	276869	290062	290097	276974
42V 50Hz/60Hz	276555	276590	276695	276730	276835	276870	–	–	–
110V 50Hz/60Hz	276556	276591	276696	276731	276836	276871	–	–	–
220V 50Hz/60Hz	276557	276592	276697	276732	276837	276872	–	–	–
230V 50Hz/60Hz	276558	276593	276698	276733	276838	276873	290066	290101	276978
Special voltages other than the already shown normal voltages ¹⁾	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
...V 50Hz (12 – 600V) ³⁾	276562	276597	276702	276737	276842	276877	290070	290105	276982
...V 60Hz (12 – 600V) ³⁾	276563	276598	276703	276738	276843	276878	290071	290106	276983
DC	DILM7-10 (...)	DILM7-01 (...)	DILM9-10 (...)	DILM9-01 (...)	DILM12-10 (...)	DILM12-01 (...)	DILM15-10 (...)	DILM15-01 (...)	DILMP20 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
24V DC	276565	276600	276705	276740	276845	276880	290073	290108	276985
48V DC	276566	276601	276706	276741	276846	276881	–	–	–
110V DC	276568	276603	276708	276743	276848	276883	–	–	–
220V DC	276569	276604	276709	276744	276849	276884	–	–	–
Special voltages other than the already shown normal voltages ¹⁾	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
...VDC (12-250V) ³⁾	276570	276605	276710	276745	276850	276885	290078	290113	276990

Notes

- ¹⁾ To obtain the article number for ordering, read under selected type and actuating voltage from the table. Devices with dual-voltage coils are to be ordered under a single order number.
- ²⁾ With non-standard voltages the required actuating voltage from the defined range (...-...V) must be stated.
- ³⁾ Minimum order quantity: 10 off

Contactors DILM, DILH



xStart

DILM

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AC	DILM17-10 (...)	DILM17-01 (...)	DILM25-10 (...)	DILM25-01 (...)	DILM32-10 (...)	DILM32-01 (...)	DILM40 (...)	DILM50 (...)	DILM65 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
24 V 50 Hz	276991	277023	277119	277151	277247	277279	277753	277817	277881
240V 50Hz	276993	–	277121	–	277249	–	277755	277819	277883
42V 50Hz 48V 60Hz	277000	–	277128	–	277256	–	277762	277826	277890
110V 50Hz 120V 60Hz	277001	277033	277129	277161	277257	277289	277763	277827	277891
190V 50Hz 220V 60Hz	277002	–	277130	–	277258	–	277764	277828	277892
220V 50Hz 240V 60Hz	277003	–	277131	–	277259	–	277765	277829	277893
230V 50Hz 240V 60Hz	277004	277036	277132	277164	277260	277292	277766	277830	277894
380V 50Hz 440V 60Hz	277005	–	277133	–	277261	–	277767	277831	277895
400V 50Hz 440V 60Hz	277006	277038	277134	277166	277262	277294	277768	277832	277896
415V 50Hz 480V 60Hz	277007	–	277135	–	277263	–	277769	277833	277897
24V 50Hz/60Hz	277008	277040	277136	277168	277264	277296	277770	277834	277898
42V 50Hz/60Hz	277009	–	277137	–	277265	–	277771	277835	277899
110V 50Hz/60Hz	277010	277042	277138	277170	277266	277298	277772	277836	277900
220V 50Hz/60Hz	277011	277043	277139	277171	277267	277299	277773	277837	277901
230V 50Hz/60Hz	277012	277044	277140	277172	277268	277300	277774	277838	277902
Special voltages other than the already shown normal voltages ²⁾	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
...V 50Hz (24 – 600V)	277016 ⁷⁾	277048 ⁷⁾	277144 ⁷⁾	277176 ⁷⁾	277272 ⁷⁾	277304 ⁸⁾	277778 ⁸⁾	277842 ⁸⁾	277906 ⁸⁾
...V 60Hz (24 – 600V)	277017 ⁷⁾	277049 ⁷⁾	277145 ⁷⁾	277177 ⁷⁾	277273 ⁷⁾	277305 ⁸⁾	277779 ⁸⁾	277843 ⁸⁾	277907 ⁸⁾
DC	DILM17-10(...)	DILM17-01(...)	DILM25-10(...)	DILM25-01(...)	DILM32-10(...)	DILM32-01(...)	DILM40(...)	DILM50(...)	DILM65(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
RDC 24 ³⁾	277018	277050	277146	277178	277274	277306	277780	277844	277908
RDC 60 ⁴⁾	277019	277051	277147	277179	277275	277307	277781	277845	277909
RDC 130 ⁵⁾	277020	277052	277148	277180	277276	277308	277782	277846	277910
RDC 240 ⁶⁾	277021	277053	277149	277181	277277	277309	277783	277847	277911

Notes

- ¹⁾ The article no. consists of the type and the actuating voltage. Devices with dual-voltage coils are to be ordered under a single order number.
- ²⁾ With non-standard voltages the required actuating voltage from the defined range (...-...V) must be stated.
- ³⁾ 24 – 27 V DC
- ⁴⁾ 48 – 60 V DC
- ⁵⁾ 110 – 130 V DC
- ⁶⁾ 200 – 240 V DC
- ⁷⁾ Minimum order 10 off
- ⁸⁾ Minimum order 5 off

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DILM

xStart

AC	DILM80 (...)	DILM95 (...)	AC	DILM115 (...)	DILM150 (...)	DILM170 (...)
	Article no. ¹⁾	Article no. ¹⁾		Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Standard voltages	Price see price list	Price see price list	Price see price list
24 V 50 Hz	235904	239467	RAC 24 ⁷⁾	239545	239585	107010
240V 50Hz	235910	239469	RAC 48 ⁸⁾	239546	239586	107011
42V 50Hz	239394	239476	RAC 120 ⁹⁾	239547	239587	107012
48V 60Hz			RAC 240 ¹⁰⁾	239548	239588	107013
110V 50Hz	239399	239477	RAC 440 ¹¹⁾	239549	239589	107014
120V 60Hz			RAC 500 ¹²⁾	239550	239590	107015
190V 50Hz	239400	239478	DC	DILM115 (...)	DILM150 (...)	DILM170 (...)
220V 50Hz	239401	239479		Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
240V 60Hz			Standard voltages	Price see price list	Price see price list	Price see price list
230V 50Hz	239402	239480	RDC 24 ³⁾	239555	239591	107016
240V 60Hz			RDC 60 ⁴⁾	239560	239592	107017
380V 50Hz	239403	239481	RDC 130 ⁵⁾	239567	239593	107018
440V 60Hz			RDC 240 ⁶⁾	239572	239594	107019
400V 50Hz	239404	239482	Notes	¹⁾ The article no. consists of the type and the actuating voltage. Devices with dual-voltage coils are to be ordered under a single order number. ²⁾ With non-standard voltages the required actuating voltage from the defined range (...-...V) must be stated. ³⁾ 24 – 27 V DC ⁴⁾ 48 – 60 V DC ⁵⁾ 110 – 130 V DC ⁶⁾ 200 – 240 V DC ⁷⁾ 24 V 50/60 Hz ⁸⁾ 42 – 48 V 50/60 Hz ⁹⁾ 100 – 120 V 50/60 Hz ¹⁰⁾ 190 – 240 V 50/60 Hz ¹¹⁾ 380 – 440 V 50/60 Hz ¹²⁾ 480 – 500 V 50/60 Hz ¹³⁾ Minimum order quantity: 5 off		
440V 60Hz	239404	239482				
415V 50Hz	239405	239483				
480V 60Hz						
24V 50Hz/60Hz	239406	239484				
42V 50Hz/60Hz	239407	239485				
110V 50Hz/60Hz	239408	239486				
220V 50Hz/60Hz	239409	239487				
230V 50Hz/60Hz	239410	239488				
Special voltages other than the already shown normal voltages ²⁾	Price see price list	Price see price list				
...V 50Hz (24 – 600V) ¹³⁾	239414	239504				
...V 60Hz (24 – 600V) ¹³⁾	239415	239509				
DC	DILM80 (...)	DILM95 (...)				
	Article no. ¹⁾	Article no. ¹⁾				
Standard voltages	Price see price list	Price see price list				
RDC 24 ³⁾	239416	239510				
RDC 60 ⁴⁾	239417	239511				
RDC 130 ⁵⁾	239418	239512				
RDC 240 ⁶⁾	239419	239513				

Contactors DILM, DILH



xStart

DILM

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AC	DILMC7-10(...)	DILMC7-01(...)	DILMC9-10(...)	DILMC9-01(...)	DILMC12-10(...)	DILMC12-01(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
24 V 50 Hz	277379	277411	277443	277475	277507	277539
110V 50Hz 120V 60Hz	277386	277418	277450	277482	277514	277546
230V 50Hz 240V 60Hz	277389	277421	277453	277485	277517	277549
24V 50Hz/60Hz	277393	277425	277457	277489	277521	277553
110V 50Hz/60Hz	277395	277427	277459	277491	277523	277555
230V 50Hz/60Hz	277397	277429	277461	277493	277525	277557
Special voltages other than the already shown normal voltages ²⁾	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
...V 50Hz (12 – 600V) ⁶⁾	277401	277433	277465	277497	277529	277561
...V 60Hz (12 – 600V) ⁶⁾	277402	277434	277466	277498	277530	277562
DC	DILMC7-10(...)	DILMC7-01(...)	DILMC9-10(...)	DILMC9-01(...)	DILMC12-10(...)	DILMC12-01(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
24V DC	277404	277436	277468	277500	277532	277564
110V DC	277407	277439	277471	277503	277535	277567
220V DC	277408	277440	277472	277504	277536	277568
Special voltages other than the already shown normal voltages ²⁾	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
...VDC (12 – 250V) ⁶⁾	277409	277441	277473	277505	277537	277569
AC	DILMC17-10 (...)	DILMC17-01 (...)	DILMC25-10 (...)	DILMC25-01 (...)	DILMC32-10 (...)	DILMC32-01 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
24 V 50 Hz	277570	277600	277630	277660	277690	277720
110V 50Hz 120V 60Hz	277578	277608	277638	277668	277698	277728
230V 50Hz 240V 60Hz	277581	277611	277641	277671	277701	277731
24V 50Hz/60Hz	277585	277615	277645	277675	277705	277735
220V 50Hz/60Hz	277588	277618	277648	277678	277708	277738
230V 50Hz/60Hz	277589	277619	277649	277679	277709	277739
Special voltages other than the already shown normal voltages ²⁾	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
...V 50Hz (24 – 600V) ⁶⁾	277593	277623	277653	277683	277713	277743
...V 60Hz (24 – 600V) ⁶⁾	277594	277624	277654	277684	277714	277744
DC	DILMC17-10 (...)	DILMC17-01 (...)	DILMC25-10 (...)	DILMC25-01 (...)	DILMC32-10 (...)	DILMC32-01 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
RDC 24 ³⁾	277595	277625	277655	277685	277715	277745
RDC 130 ⁴⁾	277597	277627	277657	277687	277717	277747
RDC 240 ⁵⁾	277598	277628	277658	277688	277718	277748

Notes

¹⁾ The article no. consists of the type and the actuating voltage. Devices with dual-voltage coils are to be ordered under a single order number.

²⁾ With non-standard voltages the required actuating voltage from the defined range (...-...V) must be stated.

³⁾ 24 – 27 V DC

⁴⁾ 110 – 130 V DC

⁵⁾ 200 – 240 V DC

⁶⁾ Minimum order quantity: 10 off



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DILM...XSP...



AC	DILM32-XSP (...)	DILM65-XSP (...)	DILM95-XSP (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list
24 V 50 Hz	281130	281160	229984
240V 50Hz	281132	281162	229986
24V 60Hz	281134	281164	229988
115V 60Hz	281136	281166	229990
42V 50Hz 48V 60Hz	281137	281167	229994
110V 50Hz 120V 60Hz	281138	281168	230058
190V 50Hz 220V 60Hz	281139	281169	230059
220V 50Hz 240V 60Hz	281140	281170	230061
230V 50Hz 240V 60Hz	281141	281171	230062
380V 50Hz 440V 60Hz	281142	281172	230063
400V 50Hz 440V 60Hz	281143	281173	230064
415V 50Hz 480V 60Hz	281144	281174	230065
24V 50Hz/60Hz	281145	281175	230066
42V 50Hz/60Hz	281146	281176	230067
110V 50Hz/60Hz	281147	281177	230068
220V 50Hz/60Hz	281148	281178	230073
230V 50Hz/60Hz	281149	281179	230074
Special voltages other than the already shown normal voltages ²⁾	Price see price list	Price see price list	Price see price list
...V 50Hz (24 – 600V)	281153 ¹³⁾	281183 ¹⁴⁾	230078 ¹⁴⁾
...V 60Hz (24 – 600V)	281154 ¹³⁾	281184 ¹⁴⁾	230079 ¹⁴⁾
DC	DILM32-XSP (...)	DILM65-XSP (...)	DILM95-XSP (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list
RDC 24 ³⁾	281155	281185	230080
RDC 60 ⁴⁾	281156	281186	230081
RDC 130 ⁵⁾	281157	281187	230082
RDC 240 ⁶⁾	281158	281188	230107

AC	DILM150-XSP (...)
	Article no. ¹⁾
Standard voltages	Price see price list
RAC 24 ⁷⁾	230109
RAC 48 ⁸⁾	230110
RAC 120 ⁹⁾	230111
RAC 240 ¹⁰⁾	230112
RAC 440 ¹¹⁾	230113
RAC 500 ¹²⁾	230114
DC	DILM150-XSP (...)
	Article no. ¹⁾
Standard voltages	Price see price list
RDC 24 ³⁾	230115
RDC 60 ⁴⁾	230116
RDC 130 ⁵⁾	230117
RDC 240 ⁶⁾	230122

Notes

- ¹⁾ The article no. consists of the type and the actuating voltage. Devices with dual-voltage coils are to be ordered under a single order number.
- ²⁾ With non-standard voltages the required actuating voltage from the defined range (...-...V) must be stated.
- ³⁾ 24 – 27 V DC
- ⁴⁾ 48 – 60 V DC
- ⁵⁾ 110 – 130 V DC
- ⁶⁾ 200 – 240 V DC
- ⁷⁾ 24 V 50/60 Hz
- ⁸⁾ 42 – 48 V 50/60 Hz
- ⁹⁾ 100 – 120 V 50/60 Hz
- ¹⁰⁾ 190 – 240 V 50/60 Hz
- ¹¹⁾ 380 – 440 V 50/60 Hz
- ¹²⁾ 480 – 500 V 50/60 Hz
- ¹³⁾ Minimum order quantity: 10 off
- ¹⁴⁾ Minimum order quantity: 5 off

Contactors DILM



xStart

DILK, DILMF

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AC	DILK12-11 (...)	DILK20-11 (...)	DILK25-11 (...)	DILK33-10 (...)	DILK50-10 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
110V 50Hz, 120V 60Hz	293985	294007	294029	294051	294073
190V 50Hz, 220V 60Hz	293986	294008	294030	294052	294074
230V 50Hz, 240V 60Hz	293988	294010	294032	294054	294076
400V 50Hz, 440V 60Hz	293990	294012	294034	3)	3)
Special voltages other than the already shown normalvoltages ²⁾	Price see price list	Price see price list	Price see price list		
...V 50Hz (24 – 600V) ⁴⁾	293997	294019	294041	–	–
...V 60Hz (24 – 600V) ⁴⁾	293998	294020	294042	–	–

Notes

¹⁾ The article no. is formed from the combination of type and actuating voltage. Devices with dual-voltage coils are to be ordered under a single order number.

²⁾ With non-standard voltages the required actuating voltage from the defined range (...-...V) must be stated.

³⁾ On request

⁴⁾ Minimum order quantity: 10 off

Contactors up to 150 A with electronic actuation

AC	DILMF8-10 (...)	DILMF8-01 (...)	DILMF11-10 (...)	DILMF11-01 (...)	DILMF14-10 (...)	DILMF14-01 (...)	DILMF17-10 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
RAC24 ¹⁾	104410	104414	104418	104422	104426	104430	104434
RAC48 ³⁾	104411	104415	104419	104423	104427	104431	104435
RAC120 ⁴⁾	104412	104416	104420	104424	104428	104432	104436
RAC240 ⁵⁾	104413	104417	104421	104425	104429	104433	104437
AC	DILMF17-01 (...)	DILMF25-10 (...)	DILMF25-01 (...)	DILMF32-10 (...)	DILMF32-01 (...)	DILMF40 (...)	DILMF50 (...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
RAC24 ²⁾	104438	104442	104446	104450	104454	104458	104462
RAC48 ³⁾	104439	104443	104447	104451	104455	104459	104463
RAC120 ⁴⁾	104440	104444	104448	104452	104456	104460	104464
RAC240 ⁵⁾	104441	104445	104449	104453	104457	104461	104465
AC	DILMF65 (...)	DILMF80 (...)	DILMF95 (...)	DILMF115 (...)	DILMF150 (...)		
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾		
Standard voltages	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list		
RAC24 ²⁾	104466	104470	104474	104478	104482		
RAC48 ³⁾	104467	104471	104475	104479	104483		
RAC120 ⁴⁾	104468	104472	104476	104480	104484		
RAC240 ⁵⁾	104469	104473	104477	104481	104485		

Notes

¹⁾ The article number is a combination of part no. and operating voltage

²⁾ 24-24V

³⁾ 42-48

⁴⁾ 100-120

⁵⁾ 190-240



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DILM

Complete device Comfort	DILM185 /22(...)	DILM225 /22(...)	DILM250 /22(...)	DILM300 /22(...)	DILM400 /22(...)	DILM500 /22(...)	DILM580 /22(...)	DILM650 /22(...)	DILM750 /22(...)	DILM820 /22(...)	DILM1000 /22(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Voltage- variants	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
RDC 48 ²⁾	208191	208195	208199	208203	208207	208211	–	–	–	–	–
RA 110 ³⁾	208192	208196	208200	208204	208208	208212	208215	208218	208221	208224	–
RA 250 ⁴⁾	208193	208197	208201	208205	208209	208213	208216	208219	208222	208225	267214
RAC 500 ^{5) 6)}	208194	208198	208202	208206	208210	208214	208217	208220	208223	208226	–

Complete device Standard	DILM185 -S/22(...)	DILM225 -S/22(...)	DILM250 -S/22(...)	DILM300 -S/22(...)	DILM400 -S/22(...)	DILM500 -S/22(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Voltage variants	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list	Price see price list
110-120V 50/60Hz	274182	274186	274189	274192	274195	274198
220-240V 50/60Hz	274185	274187	274190	274193	274196	274199

Electronic module incl. coil for Comfort variants	DILM250-XSP/E(...)	DILM500-XSP/E(...)	DILM1000-XSP/E(...)
	Article no. ¹⁾	Article no. ¹⁾	Article no. ¹⁾
Voltage variants	Price see price list	Price see price list	Price see price list
RDC 48 ²⁾	208250	208254	–
RA 110 ³⁾	208251	208255	289146
RA 250 ⁴⁾	208252	208256	289145
RAC 500 ^{5) 6)}	208253	208257	289147

Electronic module incl. coil for Standard variants	DILM250-S-XSP/E(...)	DILM500-S-XSP/E(...)
	Article no. ¹⁾	Article no. ¹⁾
Voltage variants	Price see price list	Price see price list
110-120V 50/60Hz	274201	274204
220-240V 50/60Hz	274202	274205

Notes.

- ¹⁾ The article no. is made up from a combination of part no. and actuating voltage
- ²⁾ 24 – 48 V DC
- ³⁾ 48 – 110 V 40 – 60 Hz/48 – 110 V DC
- ⁴⁾ 110 – 250 V 40 – 60 Hz/110 – 250 V DC
- ⁵⁾ 250 – 500 V 40 – 60 Hz
- ⁶⁾ DC on request

Contactors DILM, DILH



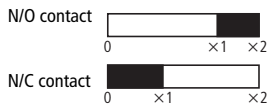
DILM, DILA, DILE, DILH

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Contactor contact travel diagrams

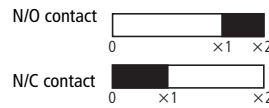
The diagrams show the closing and opening travel of the contacts at no load.



		x1	x2	
DILE AC	N/O early-make contact	1.9	2.8	
	N/C early-break contact	0.95	2.8	
	...DILE	N/O early-make contact	1.9	2.8
...DILE	N/C early-break contact	0.9	2.8	
	...DDILE	Early-make contact	1.06	2.9
	Late-break contact	1.86	2.9	
DILE DC	N/O early-make contact	1.9	2.85	
	N/C early-break contact	0.95	2.85	
	...DILE	N/O early-make contact	1.9	2.8
...DILE	N/C early-break contact	0.9	2.8	
	...DDILE	Early-make contact	1.06	2.9
	Late-break contact	1.86	2.9	
DILA- AC	N/O early-make contact	3.3	4.5	
	N/C early-break contact	1.0	4.5	
	DILA-XHI	N/O early-make contact	3.2	4.5
DILA-XHI	N/C early-break contact	1.6	4.5	
	DILA-XHIV	Early-make contact	2.0	4.5
	Late-break contact	2.8	4.5	
DILA- DC	N/O early-make contact	2.1	2.9	
	N/C early-break contact	0.7	2.9	
	DILA-XHI	N/O early-make contact	2.3	2.9
DILA-XHI	N/C early-break contact	0.7	2.9	
	DILA-XHIV	Early-make contact	1.1	2.9
	Late-break contact	1.9	2.9	
DILA- DC	N/O early-make contact	2.3	2.9	
	N/C early-break contact	0.7	2.9	
	DILA-XHIV	Early-make contact	1.1	2.9
DILA- DC	Late-break contact	1.9	2.9	
	N/O early-make contact	2.3	2.9	
	N/C early-break contact	0.7	2.9	
DILM7/9 AC	N/O early-make contact	3.3	4.5	
	N/C early-break contact	1.0	4.5	
	DILM32-XHI ,DILA-XHI	N/O early-make contact	3.2	4.5
DILM32-XHI ,DILA-XHI	N/C early-break contact	1.6	4.5	
	DILA-XHIV	Early-make contact	2.0	4.5
	Late-break contact	2.8	4.5	
DILA-XHIV	N/O early-make contact	3.2	4.5	
	N/C early-break contact	1.6	4.5	
	DILM7/9 DC	N/O early-make contact	2.1	2.9
DILM7/9 DC	N/C early-break contact	0.7	2.9	
	DILM32-XHI ,DILA-XHI	N/O early-make contact	2.3	2.9
	N/C early-break contact	0.7	2.9	
DILM32-XHI ,DILA-XHI	Early-make contact	1.1	2.9	
	Late-break contact	1.9	2.9	
	N/O early-make contact	2.3	2.9	
DILA-XHIV	N/C early-break contact	0.7	2.9	
	DILM12/15/P20 AC	N/O early-make contact	3.3	4.5
	N/C early-break contact	1.0	4.5	
DILM12/15/P20 AC	N/O early-make contact	3.2	4.5	
	N/C early-break contact	1.6	4.5	
	DILA-XHIV	Early-make contact	2.0	4.5
DILA-XHIV	Late-break contact	2.8	4.5	
	N/O early-make contact	3.2	4.5	
	N/C early-break contact	1.6	4.5	
DILM12/15/P20 DC	N/O early-make contact	3.3	4.4	
	N/C early-break contact	1.0	4.4	
	DILM32-XHI ,DILA-XHI	N/O early-make contact	3.2	4.4
DILM32-XHI ,DILA-XHI	N/C early-break contact	1.6	4.4	
	DILA-XHIV	Early-make contact	2.0	4.4
	Late-break contact	2.8	4.4	
DILA-XHIV	N/O early-make contact	3.2	4.4	
	N/C early-break contact	1.6	4.4	
	DILM12/15/P20 DC	N/O early-make contact	3.3	4.4
DILM12/15/P20 DC	N/C early-break contact	1.0	4.4	
	DILM32-XHI ,DILA-XHI	N/O early-make contact	3.2	4.4
	N/C early-break contact	1.6	4.4	

Contactor contact travel diagrams

The diagrams show the closing and opening travel of the contacts at no load.



		x1	x2	
DILA-XHIV	Early-make contact	2.0	4.4	
	Late-break contact	2.8	4.4	
	N/O early-make contact	3.2	4.4	
DILA-XHIV	N/C early-break contact	1.6	4.4	
	DILM17/25/32	N/O early-make contact	4.0	6.0
	Auxiliary N/C	1.8	6.0	
DILM17/25/32	Auxiliary N/O	3.2	6.0	
	DILM32-XHI ,DILA-XHI	N/O early-make contact	3.2	6.0
	N/C early-break contact	1.6	6.0	
DILA-XHIV	Early-make contact	2.0	6.0	
	Late-break contact	2.8	6.0	
	N/O early-make contact	3.2	6.0	
DILA-XHIV	N/C early-break contact	1.6	6.0	
	DILM40/50/65	N/O early-make contact	5.1	7.5
	DILM150-XHI	N/O early-make contact	5.7	7.5
DILM150-XHI	N/C early-break contact	3.9	7.5	
	DILM150-XHIV	Early-make contact	3.8	7.5
	Late-break contact	5.4	7.5	
DILM150-XHIV	N/O early-make contact	5.7	7.5	
	N/C early-break contact	3.9	7.5	
	DILM1000-XHI	N/O early-make contact	5.5	7.5
DILM1000-XHI	N/C early-break contact	3.6	7.5	
	DILM1000-XHIV	Early-make contact	4.1	7.5
	Late-break contact	5.0	7.5	
DILM1000-XHIV	N/O early-make contact	8.0	11	
	DILM80/95/115/150/170	N/O early-make contact	9.2	11
	DILM150-XHI	N/O early-make contact	9.2	11
DILM150-XHI	N/C early-break contact	7.4	11	
	DILM150-XHIV	Early-make contact	7.3	11
	Late-break contact	8.9	11	
DILM150-XHIV	N/O early-make contact	9.2	11	
	N/C early-break contact	7.4	11	
	DILM1000-XHI	N/O early-make contact	9.0	11
DILM1000-XHI	N/C early-break contact	7.1	11	
	DILM1000-XHIV	Early-make contact	7.6	11
	Late-break contact	8.5	11	
DILM1000-XHIV	N/O early-make contact	10.1	13.1	
	DILM185/225/250	N/O early-make contact	10.3	13.1
	DILM1000-XHI	N/O early-make contact	10.3	13.1
DILM1000-XHI	N/C early-break contact	8.4	13.1	
	DILM1000-XHIV	Early-make contact	8.7	13.1
	Late-break contact	9.8	13.1	
DILM1000-XHIV	N/O early-make contact	8.9	13.1	
	DILM300/400/500	N/O early-make contact	8.9	13.1
	DILM1000-XHI	N/O early-make contact	10.3	13.1
DILM1000-XHI	N/C early-break contact	8.4	13.1	
	DILM1000-XHIV	Early-make contact	8.7	13.1
	Late-break contact	9.8	13.1	
DILM1000-XHIV	N/O early-make contact	2.0	4.1	
	DILM580/650/750/820	N/O early-make contact	7.4	10.5
	DILM1000-XHI	N/O early-make contact	7.4	10.5
DILM1000-XHI	N/C early-break contact	5.5	10.5	
	DILM1000-XHIV	Early-make contact	6.0	10.5
	Late-break contact	6.8	10.5	
DILM1000-XHIV	N/O early-make contact	2.0	4.1	
	DILM1000/1600	N/O early-make contact	7.4	10.5
	DILM1000-XHI	N/O early-make contact	7.4	10.5
DILM1000-XHI	N/C early-break contact	5.5	10.5	
	DILM1000-XHIV	Early-make contact	6.0	10.5
	Late-break contact	6.8	10.5	
DILM1000-XHIV	N/O early-make contact	2.0	4.1	
	DILH1400/2000	N/O early-make contact	2.0	4.1
	DILM1000-XHI	N/O early-make contact	7.4	10.5
DILM1000-XHI	N/C early-break contact	5.5	10.5	
	DILM1000-XHIV	Early-make contact	6.0	10.5
	Late-break contact	6.8	10.5	



Components

Part no.	Contactor selection				Insulated enclosures
	with front mounting auxiliary contacts	with side mounting auxiliary contacts	with overload relay	with parallel connector	
DILE...(-G)(-C)	-	-	-	-	CI-K1-95-TS
DILE...(-G)(-C)	●	-	-	-	CI-K2-145-TS
DILE...(-G)	●	-	●	-	CI-K2-145-AD
DILE...(-G)	-	-	-	●	CI-K2-100-TS
DILE...(-G)	●	-	-	●	CI-K2-145-TS
DILM7 to DILM15	●	-	-	-	CI-K2-145-TS
DILM7 to DILM15	●	-	●	-	CI-K3-160-TS
DILM17 to DILM32	-	-	-	-	CI-K2-145-TS
DILM17 to DILM32	●	-	●	-	CI23E-150
DILM40 to DILM65	-	●	-	-	CI-K3-160-TS
DILM40 to DILM65	●	●	●	-	CI43E-150
DILM80 to DILM170	●	●	-	-	CI43E-200
DILM80 to DILM170	●	●	●	-	CI44E-200
DILM185	-	●	-	-	CI48-250
DILM225	-	●	-	-	CI48-250
DILM250	-	●	-	-	CI48-250
DILM300	-	●	-	-	CI48-250
DILM400	-	●	-	-	CI48-250
DILM500	-	●	-	-	CI48-250
DILM580	-	●	-	-	CI48-250
DILM650	-	●	-	-	CI48-250
DILM750	-	●	-	-	CI48-250
DILM820	-	●	-	-	CI48-250
DIULE...	●	-	-	-	CI-K3-125-TS
DIULE...	●	-	●	-	CI-K3-125-TS
DIULM7 to DIULM12	●	-	-	-	CI-K4-160-TS
DIULM17 to DIULM32	●	-	-	-	CI23E-150
DIULM40 to DIULM65	●	-	-	-	CI43E-200
SDAINLEM...	●	-	-	-	CI-K5-125-TS CI-K5-125-M
SDAINLM12 to SDAINLM22	●	-	-	-	CI-K5-160-TS
SDAINLM30 to SDAINLM65	●	-	-	-	CI23E-150
SDAINLM70 to SDAINLM115	●	-	-	-	CI43E-200

Notes

1) Use carrier rail and mounting plate

CI-K small enclosure
Terminal for CI-K enclosure

→ 2/69
→ 7/51

CI enclosure

→ Chapter 14

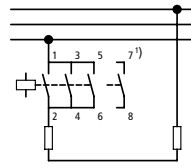
Insulated PE, N or PEN terminal for enclosure CI-K

→ 7/65

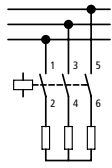


Rating data

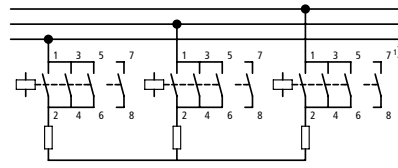
Single-phase rating AC-1



Three-phase rating AC-1



Three-phase rating AC-1



Single-phase rating AC-1					Three-phase rating AC-1					Three-phase rating AC-1				
Voltage in V			max. upstream fuse gG/gL	Rated-operating current $I_e = I_{th}$ or I_{the} A	Voltage in V			max. upstream fuse gG/gL	Rated-operating current $I_e = I_{th}$ or I_{the} A	Voltage in V			max. upstream fuse gG/gL	Rated-operating current $I_e = I_{th}$ or I_{the} A
kW	kW	kW	A	A	kW	kW	kW	A	A	kW	kW	kW	A	A
220	380	660			220	380	660			220	380	660		
230	400	690			230	400	690			230	400	690		
240	440				240	440				240	440			
open version														
10	18	31	50	50	7	13	20	20	20	18	31	54	50	50
10	18	31	50	50	7	13	20	20	20	18	31	54	50	50
12	21	37	63	60	-	-	-	-	-	21	37	65	63	60
10	18	31	-	50	7	13	22	-	20	18	31	54	-	50
13	22	38	-	60	-	-	-	-	-	22	38	65	-	60
18	32	55	-	88	13	22	38	-	35	32	55	95	-	88
21	36	63	-	100	14	25	43	-	40	36	63	109	-	100
26	45	78	-	125	18	31	54	-	50	45	78	136	-	125
34	59	102	-	163	24	41	71	-	65	59	102	176	-	163
42	72	125	-	200	29	50	87	-	80	72	125	217	-	200
47	81	141	-	225	33	56	98	-	90	81	141	244	-	225
57	99	172	-	275	40	69	119	-	110	100	172	299	-	275
68	117	204	-	325	47	81	141	-	130	118	203	353	-	325
84	144	251	-	400	58	100	174	-	160	145	250	434	-	400
101	175	317	-	460	70	120	220	-	185	175	302	549	-	460
144	248	431	800	688	100	172	299	315	275	-	-	-	-	-
165	284	494	800	788	114	197	342	315	315	-	-	-	-	-
183	316	549	1000	875	127	219	380	400	350	-	-	-	-	-
209	361	627	1000	1000	145	250	434	400	400	-	-	-	-	-
261	451	784	1250	1250	181	313	543	500	500	-	-	-	-	-
366	632	1097	-	1750	253	438	760	800	700	-	-	-	-	-
418	722	1254	-	2000	290	500	869	800	800	-	-	-	-	-
444	767	1332	-	2125	308	531	923	1000	850	-	-	-	-	-
470	812	1411	-	2250	326	563	977	1000	900	-	-	-	-	-
523	903	1568	-	2500	362	625	1086	1000	1000	-	-	-	-	-
732	1264	2195	-	3500	507	875	1520	-	1400	-	-	-	-	-
1045	1805	3135	-	5000	724	1251	2172	-	2000	-	-	-	-	-

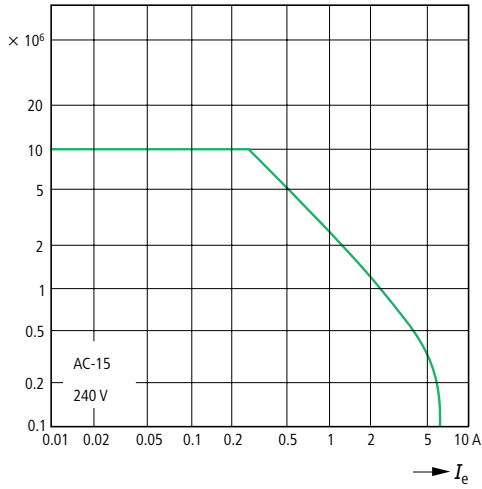
Notes 1) Contact 7 – 8 only with DILEM4(-G), DILMP20...

Part no.	Ordering data	Necessary accessories-Parallel-connector	Notes
AC operated	Page	Part no.	
DILEM-10	→ 5/3	P1DILEM	
DILEM-01	→ 5/3	P1DILEM	
DILEM4	→ 5/3	P1DILEM	
DILM7	→ 5/17	DILM12-XP1	
DILMP20	→ 5/17	DILM12-XP1	
DILM17	→ 5/17	DILM32-XP1	
DILM25	→ 5/17	DILM32-XP1	
DILM40	→ 5/17	DILM65-XP1	
DILM50	→ 5/17	DILM65-XP1	
DILM65	→ 5/17	DILM65-XP1	
DILM80(...)	→ 5/17	DILM150-XP1	
DILM95	→ 5/17	DILM150-XP1	
DILM115	→ 5/17	DILM150-XP1	
DILM150	→ 5/17	DILM150-XP1	
DILM170	→ 5/17	DILM150-KP1	
DILM185	→ 5/25	DILM185-XP1	
DILM225	→ 5/25	-	
DILM250	→ 5/25	-	
DILM300	→ 5/25	-	
DILM400	→ 5/25	-	
DILM500	→ 5/25	-	
DILM580	→ 5/25	-	
DILM650	→ 5/25	-	
DILM750	→ 5/25	-	
DILM820	→ 5/25	-	
DILH1400	→ 5/25	-	
DILH2000	→ 5/25	-	

Accessories	Page
Auxiliary contact module	→ 5/5 → 5/11
Parallel connector	→ 5/44
Enclosures	
Accessories	→ 5/43

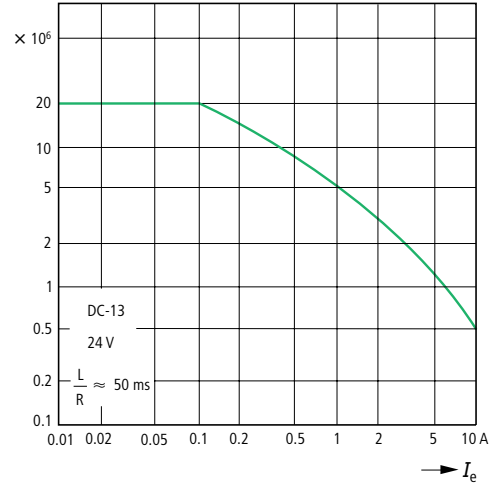
DILA (AC-15)

Component lifespan (operations)
 I_e = Rated operational current



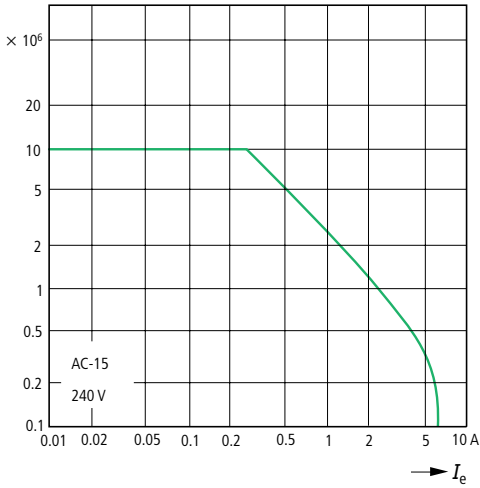
DILA (DC-13¹⁾)

Component lifespan (operations)
 I_e = Rated operational current



DILER (AC-15)

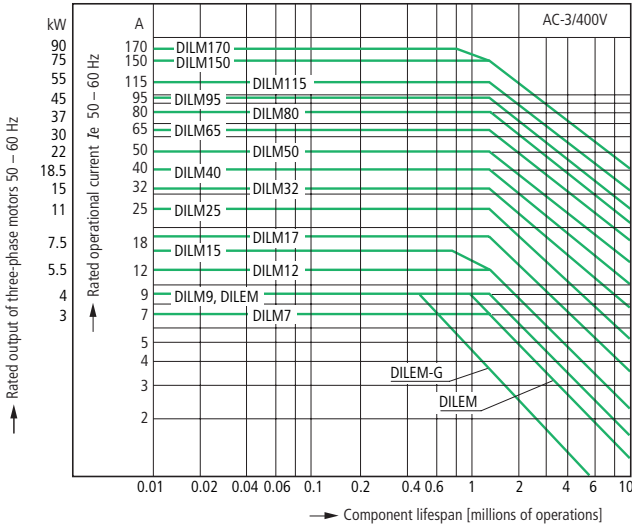
Component lifespan (operations)
 I_e = Rated operational current



Notes

¹⁾ Making and breaking conditions to DC-13, time constant as stated.

Normal switching duty



Normal AC induction motor

Operating characteristics

- Switch on: from stop
- Switch off: during run

Electrical characteristics:

- Switch on: up to $6 \times$ Rated motor current
- Switch off: up to $1 \times$ Rated motor current

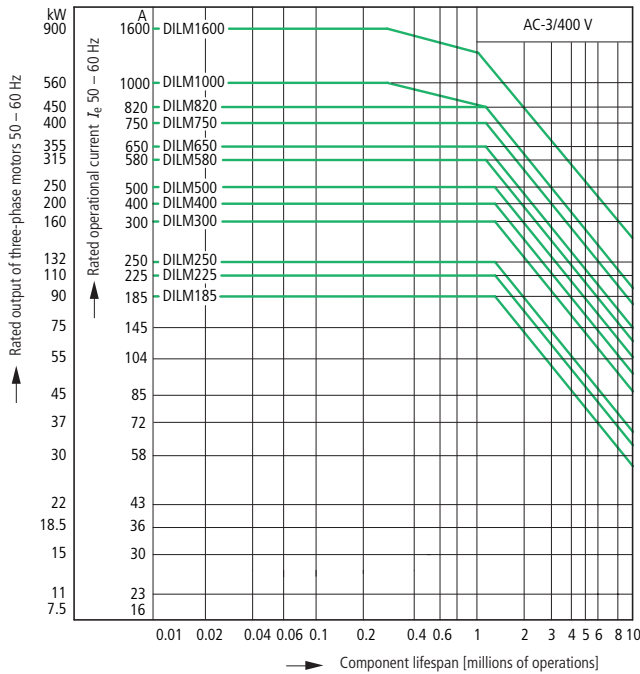
Utilization category

100 % AC-3

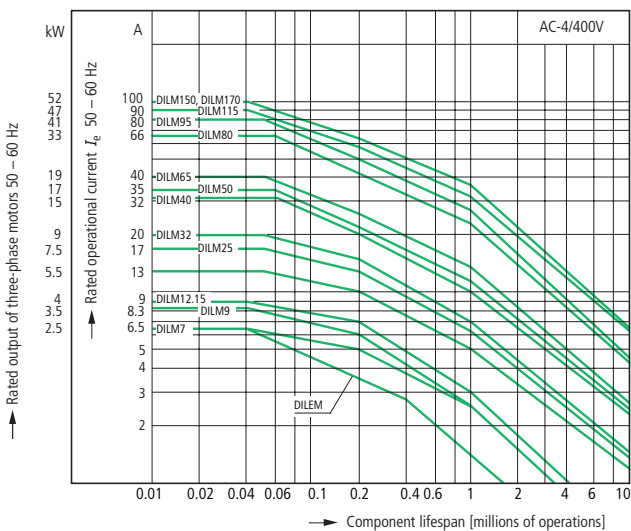
Typical applications:

- | | | |
|--------------|-----------------|-------------------------|
| Compressors | Lifts | Mixers |
| Pumps | Escalators | Agitators |
| Fans | Conveyor belts | Centrifuges |
| Hinged flaps | Bucket-elevator | Air conditioning system |

General drives for manufacturing and processing machines



Extreme switching duty



Squirrel-cage motor

Operating characteristics

- Inching, plugging, reversing

Electrical characteristics:

- Switch on: up to $6 \times$ Rated motor current
- Switch off: up to $6 \times$ Rated motor current

Utilization category

100 % AC-4

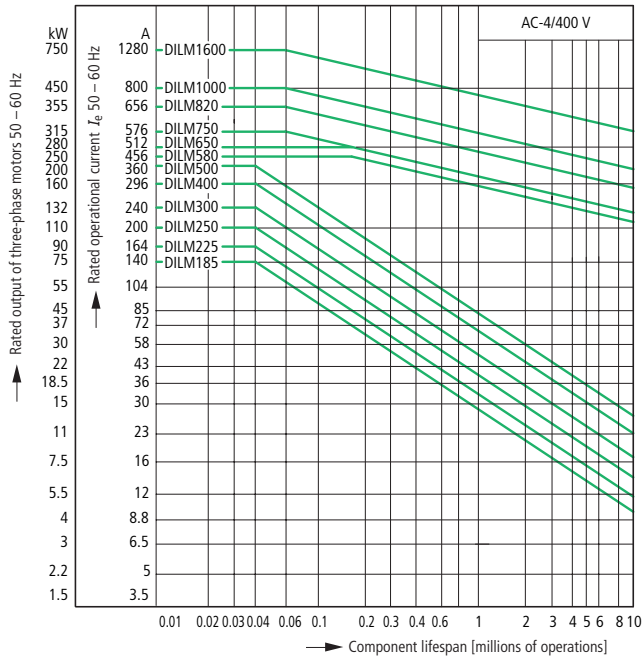
Typical applications:

- | | | |
|-------------------|----------------------|-------------|
| Printing machines | Wire drawing machine | Centrifuges |
|-------------------|----------------------|-------------|

Special drives on manufacturing and processing machines



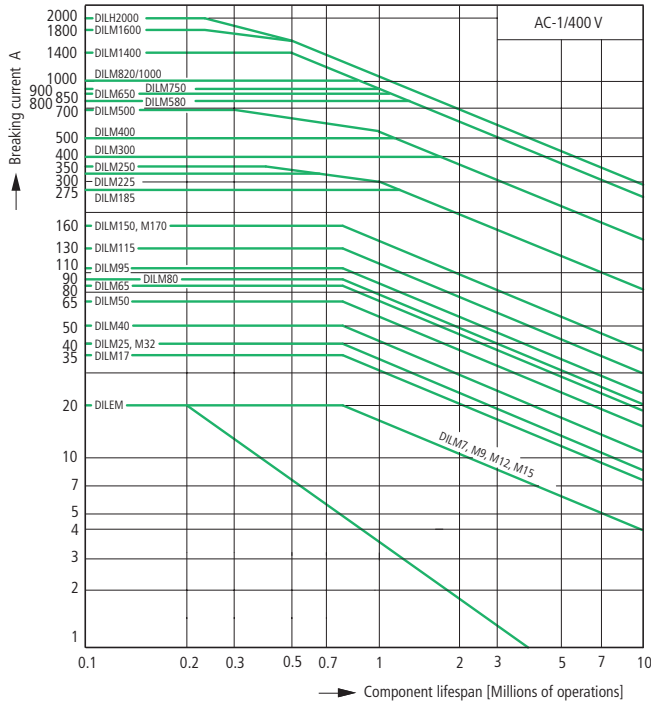
Extreme switching duty



Normal AC induction motor

- Operating characteristics
 - Inching, plugging, reversing
- Electrical characteristics:
 - Switch on: up to $6 \times$ Rated motor current
 - Switch off: up to $6 \times$ Rated motor current
- Utilization category
 - 100 % AC-4
- Typical applications:
 - Printing machines
 - Wire-drawing machines
 - Centrifuges
 - Special drives on manufacturing and processing machines

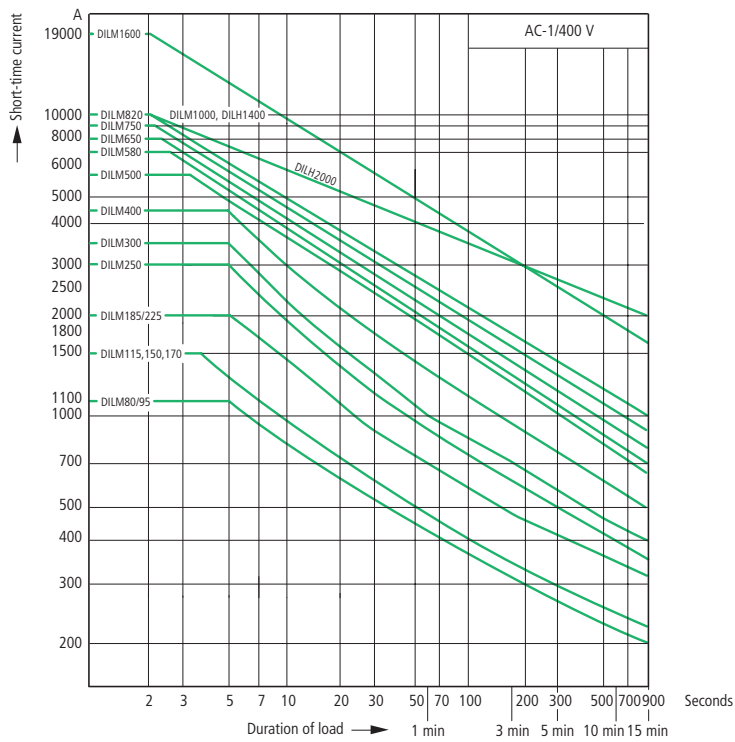
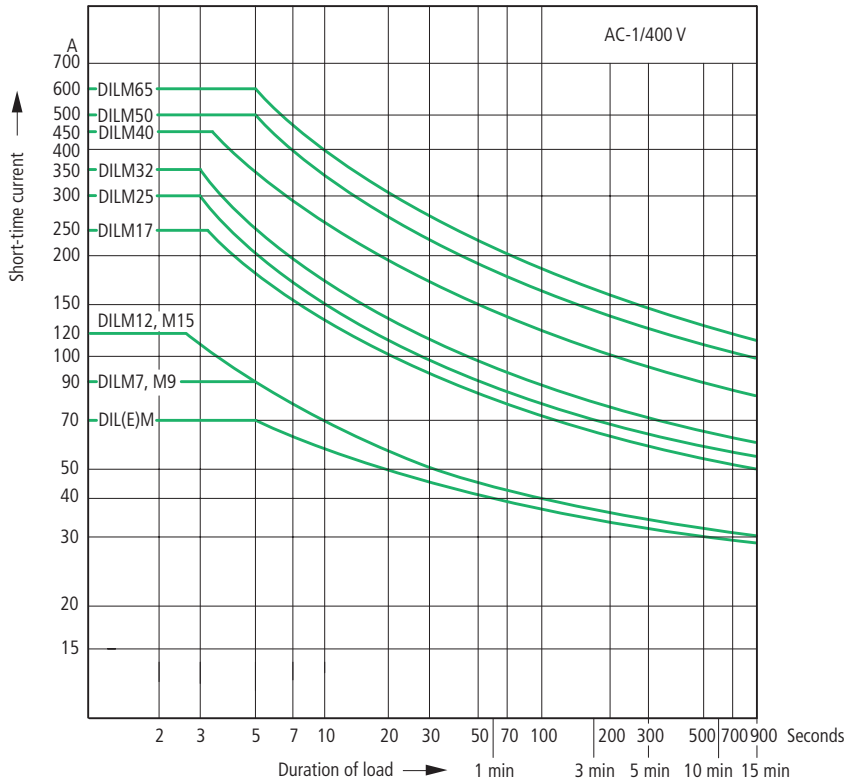
Switching conditions for non-motor loads, 3 pole, 4 pole



- Operating characteristics
 - Non inductive and slightly inductive loads
- Electrical characteristics:
 - Switch on: $1 \times$ Rated current
 - Switch off: $1 \times$ Rated current
- Utilization category
 - 100 % AC-1
- Typical applications:
 - Electric heat

Short-time loading 3 pole

Time interval between two loads: 15 minutes



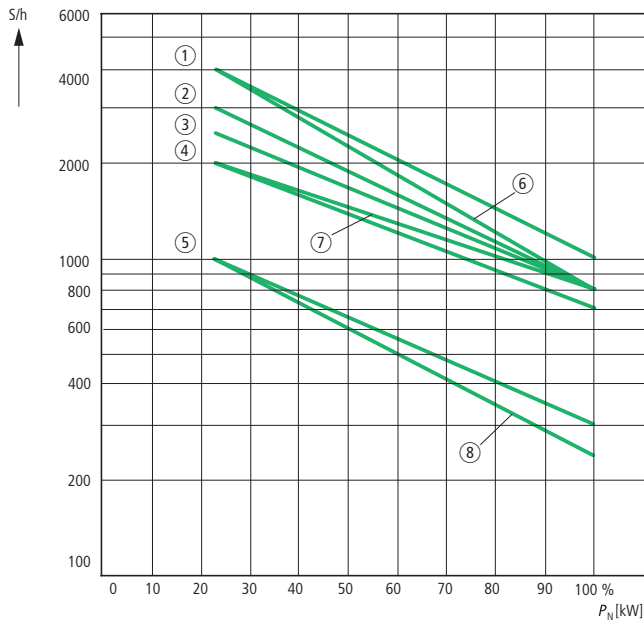
Contactors



Determination of the maximum operating frequency dependant on the rating and utilization category
(recommended values) for 400 V

P_N = max. Motor rating (kW) of the contactor to → Page 5/17

S/h = max. operation per hour



Part no.	Characteristic	AC-3	AC-2 AC-4
DILEM	7	6	8
DILM7, 9, 12, 15	3	1	5
DILM17, 25, 32	3	2	5
DILM40, 50, 65, 72	3	2	5
DILM80, 95, 115, 150, 170	3	4	5

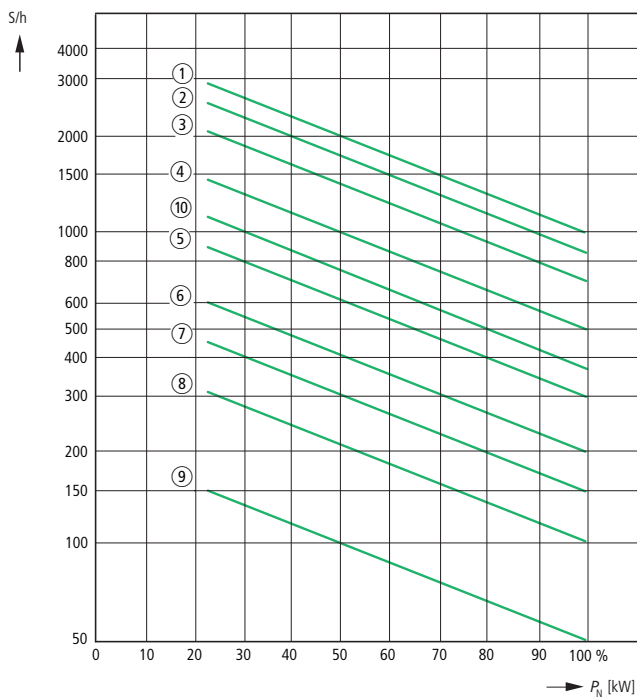
Contactors



Determination of the maximum operating frequency dependant on the rating and utilization category
(recommended values) for 400 V

P_N = max. Motor rating (kW) of the contactor to → Page 5/17

S/h = max. operation per hour



Part no.	Characteristic	AC-3	AC-4
DILM185	2	1	8
DILM225	2	1	8
DILM250	2	1	8
DILM300	3	2	9
DILM400	3	2	9
DILM500	3	2	9
DILM580	3	4	7
DILM650	3	4	7
DILM750	3	4	7
DILM820	3	4	7
DILM1000	3	4	7
DILM1600	10	10	7
DILH1400	10	—	—
DILH2000	10	—	—

Switching of DC currents

----- when necessary
cable to be supplied by
customer

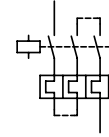
DILEM ... DILM500

with overload relay
≅ 60 V DC

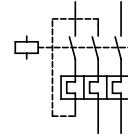
> 60V DC

with overload relay
> 60 V DC

1 pole

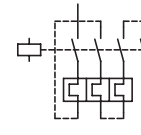
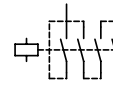


2 pole

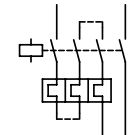


DILEM4 DILMP20

1 pole



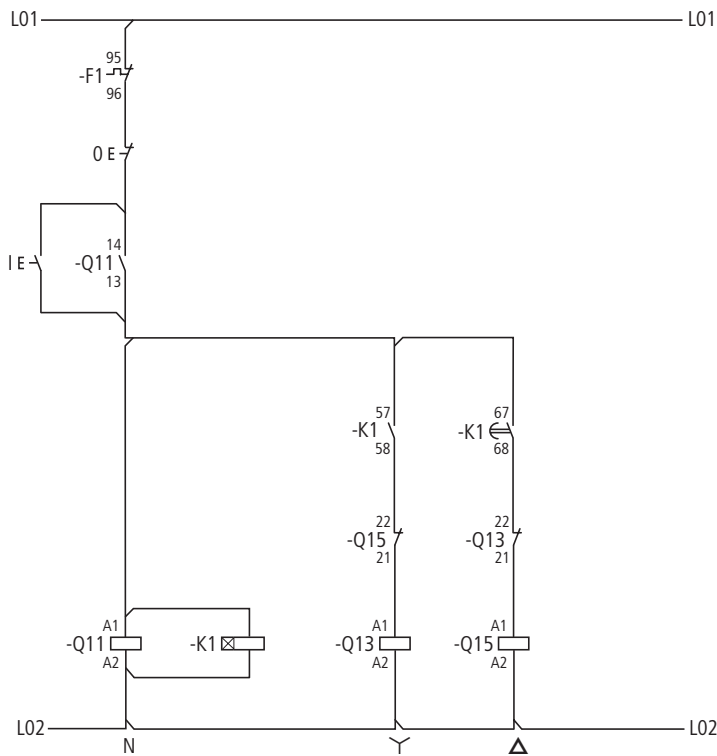
2 pole

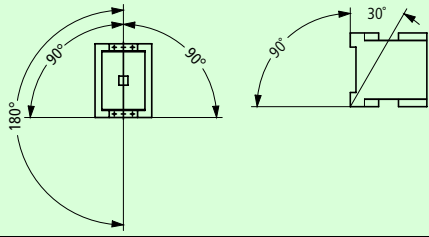


Contactors



Wiring, star-delta combination with DILM32-XTEY20



			DILA	DILA...XHI	DILER...	...DILE	
General							
Standards			IEC/EN 60947, VDE 0660, UL, CSA				
Lifespan, mechanical							
AC operated	Operations	$\times 10^6$	20	10	10	10	
DC operated	Operations	$\times 10^6$	20	10	20	20	
Maximum operating frequency							
Maximum operating frequency	Operations/h		9000	9000	9000	9000	
Climatic proofing			Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclical, to IEC 60068-2-30				
Ambient temperature							
Open		°C	25...60	25...60	25...50	25...50	
Enclosed		°C	25...40	25...40	25...40	25...40	
Ambient temperature, storage		°C	-40...80	-40...80			
Mounting position						As required, except vertically A1/A2 at the bottom	
Mechanical shock resistance (IEC/EN 60068-2-27)							
Half-sinusoidal shock, 10 ms							
Basic unit with auxiliary contact module							
	N/O contact	g	7	7	10	10	
	N/C contact	g	5	5	8	8	
Protection type			IP 20	IP 20	IP 20	IP 20	
Protection against direct contact when actuated from front (IEC 536)			Finger and back-of-hand proof				
Weight							
AC operated		kg	0.23	0.05	0.17		
DC operated		kg	0.28	0.05	0.2		
Terminal capacities							
Screw terminals							
	Solid	mm ²	1 × (0,75 – 4) 2 × (0,75 – 2,5)	1 × (0,75 – 4) 2 × (0,75 – 2,5)	1 × (0,75 – 2,5) 2 × (0,75 – 2,5)	1 × (0,75 – 2,5) 2 × (0,75 – 2,5)	
	Flexible with ferrule	mm ²	1 × (0,75 – 2,5) 2 × (0,75 – 2,5)	1 × (0,75 – 2,5) 2 × (0,75 – 2,5)	1 × (0,75 – 1,5) 2 × (0,75 – 1,5)	1 × (0,75 – 1,5) 2 × (0,75 – 1,5)	
	Solid or stranded	AWG	18 – 14	18 – 14	18 – 14	18 – 14	
Terminal screw			M3.5	M3.5	M3.5	M3.5	
Pozidriv screwdriver			Size 2	2	2	2	
Standard screwdriver			mm 0,8 × 5,5 1 × 6	0,8 × 5,5 1 × 6	0,8 × 5,5 1 × 6	0,8 × 5,5 1 × 6	
Max. tightening torque			Nm 1.2	1.2	1.2	1.2	
Spring-loaded terminals							
	Solid	mm ²	1 × (0,75 – 2,5) 2 × (0,75 – 2,5)	1 × (0,75 – 2,5) 2 × (0,75 – 2,5)	1 × (1 – 2,5) 2 × (1 – 2,5)	1 × (1 – 2,5) 2 × (1 – 2,5)	
	Flexible with or without ferrule DIN 46228	mm ²	1 × (0,75 – 1,5) 2 × (0,75 – 1,5)	1 × (0,75 – 1,5) 2 × (0,75 – 1,5)	1 × (1 – 2,5) 2 × (1 – 2,5)	1 × (1 – 2,5) 2 × (1 – 2,5)	
	Solid or stranded	AWG	18 – 14	18 – 14	1 × (16 – 14) 2 × (16 – 14)	1 × (16 – 14) 2 × (16 – 14)	
Standard screwdriver			mm 0,6 × 3,5	0,6 × 3,5	0,6 × 3,5	0,6 × 3,5	



			DILA	DILA...XHI	DILER...	...DILE	
Contacts							
Positive operating contacts to ZH 1/457, including auxiliary contact module			Yes	Yes	Yes	Yes	
Rated impulse withstand voltage	U_{imp}	V AC	6000	6000	6000	6000	
Overvoltage category/pollution degree			III/3	III/3	III/3	III/3	
Rated insulation voltage	U_i	V AC	690	690	690	690	
Rated operational voltage	U_e	V AC	690	500	600	600	
Safe isolation to VDE 0106 Part 101 and Part 101/A1							
between coil and auxiliary contacts		V AC	400	400	300	300	
between the auxiliary contacts		V AC	400	400	300	300	
Rated operational current							
AC-15	220/240 V	I_e	6	6	6	4	
	380/415 V	I_e	4	3	3	2	
	500 V	I_e	1.5	-	1.5	1.5	
DC-13 ¹⁾	DC-13 L/R – 15 ms						
	Contacts in series:						
	1	24 V	A	10	10	2.5	2.5
	1	60 V	A	6	6	-	-
	2	60 V	A	10	10	2.5	2.5
	1	110 V	A	3	3	-	-
	3	110 V	A	6	6	1.5	1.5
	1	220 V	A	1	1	-	-
	3	220 V	A	5	5	0.5	0.5
	DC-13 L/R – 50 ms						
	Contacts in series:						
	3	24 V	A	4	-	-	-
	3	60 V	A	4	-	-	-
	3	110 V	A	2	-	-	-
3	220 V	A	1	-	-	-	
Control circuit reliability (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)			Failure rate λ < 10^{-8} , < one failure at 100 million operations				
Conventional thermal current	I_{th}	A	16	16	10	10	
Short-circuit rating without welding							
Maximum overcurrent protective device							
220/240 V		PKZM0	4	-	4	4	
380/415 V		PKZM0	4	-	4	4	
Short-circuit protection maximum fuse ²⁾							
500 V		A gG/gL	10	10	6	6	
500 V		A fast	-	-	10	10	
Current heat loss at I_{th}							
AC operated		W	0.3	0.3	0.2	0.2	
DC operated		W	0.3	0.3	0.3	0.3	

Notes

¹⁾ Making and breaking conditions to DC-13, time constant as stated

²⁾ See transparent overlay "Fuses" for time/current characteristics (please enquire)



				DILA	DILA...XHI	DILER...	...DILE
Magnet systems							
Voltage tolerance							
AC operated							
	Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Pick-up	$\times U_c$	0.8...1.1	–	0.8...1.1	–
	Dual-frequency coil 50/60 Hz	Pick-up	$\times U_c$	0.8...1.1	–	0.85...1.1	–
DC operated							
	Pick-up voltage	Pick-up	$\times U_c$	0.8...1.1	–	0.85...1.3	–
	at 24 V: without auxiliary contact component (40 °C)	Pick-up	$\times U_c$	0.7 – 1.3	–	0.7 – 1.3	–
Power consumption							
	50 Hz	Pick-up	VA	24	–	25	–
	50 Hz	Sealing	VA	3.4	–	4.6	–
	50 Hz	Sealing	W	1.2	–	1.3	–
	60 Hz	Pick-up	VA	30	–	25	–
	60 Hz	Sealing	VA	4.4	–	4.6	–
	60 Hz	Sealing	W	1.4	–	1.3	–
	50/60 Hz	Pick-up	VA	27 25	–	30 29	–
	50/60 Hz	Sealing	VA	4.2 3.3	–	5.4 3.9	–
	50/60 Hz	Sealing	W	1.4 1.2	–	1.6 1.1	–
	DC operated	Pull-in = sealing	W	3	–	2.6	–
Duty factor							
			% DF	100		100	
Switching times at 100 % U_c (approximate values)							
	AC operated closing delay		ms	15 – 21	–	14 – 21	–
	AC operated N/O contact opening delay		ms	9 – 18	–	8 – 18	–
	AC operated With auxiliary contact module Max. closing delay		ms	–	–	45	45
	DC operated closing delay		ms	31	–	26 – 35	–
	DC operated N/O contact opening delay		ms	12	–	15 – 25	–
	DC operated With auxiliary contact module Max. closing delay		ms	–	–	70	70

Notes

¹⁾ Use only equal cross-sections



Amplifier module, timer module, contactor monitoring device

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ETS-VS3, DILM, CMD

				ETS4-VS3	DILM32-XTE	CMD	
General							
Standards				IEC/EN 60947, VDE 0660, UL, CSA	DIN EN 61812, IEC/EN 60947, VDE 0660, UL, CSA	IEC/EN 60947 UL CSA	
Lifespan, mechanical							
AC operated	Operations	× 10 ⁶	–	3	10		
DC operated	Operations	× 10 ⁶	30	3	10		
Maximum operating frequency							
DC operated	Operations	× 10 ⁶	72000	–	9000		
Climatic proofing				Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature							
Storage		°C	–	–40...80	–40...80		
Open		°C	–25...60	–25...60	–25...60		
Enclosed		°C	–25...45	–25...40	–25...40		
Mounting position				As required	As required, not suspended	as required	
Mechanical shock resistance (IEC/EN 60068-2-27)							
Half-sinusoidal shock, 20 ms							
	N/O contact	g	10	–	–		
Half-sinusoidal shock, 10 ms							
	N/O contact	g	–	6	4		
	N/C contact	g	–	6	4		
Protection type				IP20	IP 20	IP20	
Protection against direct contact when actuated from front (IEC 536)				Finger- and back-of-hand proof			
Weight				kg	0.09	0.08	0.1
Terminal capacities							
Solid				mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)	1 × (0.75 – 2.5) 2 × (0.75 – 1.5)	1 × (0.75...2.5) 2 × (0.75...1.5)
Flexible with ferrule				mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 1.5)	1 × (0.75 – 1.5) 2 × (0.75 – 1.5)	1 × (0.75...1.5) 2 × (0.75...1.5)
Solid or stranded				AWG	16 – 14	18 – 14	18...14
Terminal screw					M3.5	M3.5	M3.5
Pozidriv screwdriver				Size	2	2	2
Standard screwdriver				mm	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6
Max. tightening torque				Nm	1.2	1.2	1.2

Notes

¹⁾ For pick-up voltage, DC operated: Pure DC, AC bridge rectifier or smoothed double-wave rectification.

Contactors



				ETS4-VS3	DILM32-XTE	CMD
Contacts						
Rated impulse withstand voltage	U_{imp}	V AC		6000	6000	4000
Overtoltage category/pollution degree				III/2	III/3	III/3
Rated insulation voltage	U_i	V AC		440	600	250
Rated operational voltage	U_e	V		440 AC	400 AC	250 V AC control voltage 24 V DC control voltage
Rated operational current						
AC-15						
220/240 V	I_e	A		2	3	–
380/415 V	I_e	A		2	–	–
DC-13 ¹⁾						
DC-13 L/R – 15 ms						
Contacts in series:						
1	24 V	A		2.6	–	–
1	60 V	A		1	–	–
1	110 V	A		0.6	–	–
1	220 V	A		0.2	–	–
DC-13 L/R – 50 ms						
Contacts in series:						
1	24 V	A		2	–	–
1	60 V	A		0.6	–	–
1	110 V	A		0.08	–	–
1	220 V	A		0.08	–	–
DC-13 L/R – 300 ms						
Contacts in series:						
1	24 V	A		0.6	–	–
1	60 V	A		0.2	–	–
1	110 V	A		0.08	–	–
1	220 V	A		0.03	–	–
Safe isolation to VDE 0106 Part 101 and Part 101/A1						
between coil and auxiliary contacts		V AC			250	
between the auxiliary contacts		V AC		–	250	–
Control circuit reliability (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)	Failure rate	λ		<10 ⁻⁸ , < one failure at 100 million operations		
Conventional thermal current	I_{th}	A		6		6
Component lifespan						
AC-15						
230 V, $I_e = 0.1$ A	Operations	$\times 10^6$		7	–	–
230 V, $I_e = 1.2$ A	Operations	$\times 10^6$		1	–	–
Short-circuit rating without welding						
Short-circuit protection maximum fuse ²⁾						
500 V		A gG/gL		–	6	6
500 V		A fast		4	–	–

Notes

¹⁾ For rated operational current: Making and breaking conditions to DC-13, L/R constant as stated

²⁾ Max. fuses for short-circuit protection: Transparent overlay "Fuses" for time/current characteristics (please enquire)



Amplifier module, timer module, contactor monitoring device

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ETS-VS3, DILM, CMD


				ETS4-VS3	DILM32-XTE	CMD
Magnet systems						
Voltage tolerance						
Pick-up voltage						
AC operated		Pick-up	$\times U_c$	–	0.85 – 1.1	0.85 – 1.1
DC operated ¹⁾		Pick-up	$\times U_c$	0.85 – 1.2	0.7 – 1.2	0.85 – 1.1
Power consumption						
AC operated	Sealing	VA	–	2	4	
AC operated	Sealing	W	–	1.8	4	
DC operated	Pull-in = sealing	W	0.6	–	4	
Duty factor			% DF	100	100	100
Switching times at 100 % U_c (approximate values)						
DC operated closing delay			ms	7		
DC operated, opening delay			ms	3	–	–
Maximum operating frequency						
Max. operating frequency			Ops/h	–	3600	–
6 A/250 V			Ops./h	–	360	–
Minimum contact closing time						
On-delayed			ms	–	< 50	–
Off-delayed			ms	–	< 200	–
Repetition accuracy (with constant parameters)		Deviation	%	–	< 5	–
Recovery time (after 100% time delay)			ms	–	70	–
contact changeover time						
DILM32-XTEE11/DILM32-XTED11		t_u	ms	–	10	–
DILM32-XTEY20		t_u	ms	–	50	–
CMD		t_u	ms	–	–	< 100

Notes

¹⁾ For rated operational current: Making and breaking conditions to DC-13, L/R constant as stated

Contactors



			DILEM	DILEM-G	DILEM4	DILEM4-G
General						
Standards			IEC/EN 60947, VDE 0660, CSA, UL			
Lifespan, mechanical; Coil 50/60 Hz	at 50 Hz		7		7	
Lifespan, mechanical	Operations	× 10 ⁶	10	20	20	–
Maximum operating frequency						
Mechanical		Ops./h	9000	9000	9000	9000
electrical (Contactors without overload relay)			Page 05/070			
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat cyclic to IEC 60068-2-30			
Ambient temperature						
Open		°C	–25...50	–25...50	–25...50	–25...50
Enclosed		°C	–25...40	–25...40	–25...40	–25...40
Mounting position			As required except vertical with terminals A1/A2 at the bottom 			
Mechanical shock resistance (IEC/EN 60068-2-27)						
Half-sinusoidal shock, 10 ms						
Basic unit without auxiliary contact module						
Main contacts, make contacts		g	10	10	10	10
Main contacts Make/break contacts		g	10/8	10/8		
Basic unit with auxiliary contact module						
Main contacts make contact		g	10	10	10	10
Auxiliary contacts Make/break contacts		g	20/20	20/20	20/20	20/20
Protection type			IP 20	IP 20	IP 20	IP 20
Protection against direct contact when actuated from front (IEC 536)			Finger and back-of-hand proof			
Weight			0.2	0.17	0.2	0.17
Terminal capacity of auxiliary and main contacts						
Solid		mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)
Flexible with ferrule		mm ²	1 × (0.75 – 1.5) 2 × (0.75 – 1.5)	1 × (0.75 – 1.5) 2 × (0.75 – 1.5)	1 × (0.75 – 1.5) 2 × (0.75 – 1.5)	1 × (0.75 – 1.5) 2 × (0.75 – 1.5)
Solid or stranded		AWG	18 – 14	18 – 14	18 – 14	18 – 14
Terminal screw			M3.5	M3.5	M3.5	M3.5
Pozidriv screwdriver			Size 2	2	2	2
Standard screwdriver			0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6
Max. tightening torque			1.2	1.2	1.2	1.2
Terminal capacity springloaded terminals main and control circuits						
Solid		mm ²	1 × (1 – 2.5) 2 × (1 – 2.5)	1 × (1 – 2.5) 2 × (1 – 2.5)	1 × (1 – 2.5) 2 × (1 – 2.5)	1 × (1 – 2.5) 2 × (1 – 2.5)
Flexible with ferrule		mm ²	1 × (1 – 2.5) 2 × (1 – 2.5)	1 × (1 – 2.5) 2 × (1 – 2.5)	1 × (1 – 2.5) 2 × (1 – 2.5)	1 × (1 – 2.5) 2 × (1 – 2.5)
Standard screwdriver			0.6 × 3.5	0.6 × 3.5	0.6 × 3.5	0.6 × 3.5



				DILEM	DILEM-G	DILEM4	DILEM4-G
Main conducting paths							
Rated impulse withstand voltage	U_{imp}	V AC		6000	6000	6000	6000
Overvoltage category/pollution degree				III/3	III/3	III/3	III/3
Rated insulation voltage	U_i	V AC		690	690	690	690
Rated operational voltage	U_e	V AC		690	690	690	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1							
between coil and contacts		V AC		300	300	300	300
between the contacts		V AC		300	300	300	300
Making capacity (cos ϕ to IEC/EN 60947)		A		110	110	110	110
Breaking capacity	220/230 V	A		90	90	90	90
	380/400 V	A		90	90	90	90
	500 V	A		64	64	64	64
	660/690 V	A		54	54	54	54
Component lifespan	AC-1			→ Engineering guidelines			
	AC-3			→ Engineering guidelines			
	AC-4			→ Engineering guidelines			
Short-circuit protection maximum fuse							
Type "2" coordination	gL/gG	A		10	10	10	10
Type "1" coordination	gL/gG	A		20	20	20	20
Alternating voltage							
AC-1 duty							
conv. therm. current 3 pole 50 – 60 Hz							
open	at 40 °C	I_{th}	A	22	22	22	22
	at 50 °C	I_{th}	A	20	20	20	20
	at 55 °C	I_{th}	A	19	19	19	19
enclosed		I_{th}	A	16	16	16	16
Conventional free air thermal current, 1 pole							
open		I_{th}	A	50	50	60	60
enclosed		I_{th}	A	40	40	50	50
AC-3 duty							
Rated operational current AC-3 open, 50 – 60 Hz, 3 pole ¹⁾	220/230 V	I_e	A	9	9	9	9
	240 V	I_e	A	9	9	9	9
	380/400 V	I_e	A	9	9	9	9
	415 V	I_e	A	9	9	9	9
	440 V	I_e	A	9	9	9	9
	500 V	I_e	A	6.4	6.4	6.4	6.4
	660/690 V	I_e	A	4.8	4.8	4.8	4.8
Motor rating	220/230 V	P	kW	2.2	2.2	2.2	2.2
	240V	P	kW	2.5	2.5	2.5	2.5
	380/400 V	P	kW	4	4	4	4
	415 V	P	kW	4.3	4.3	4.3	4.3
	440 V	P	kW	4.6	4.6	4.6	4.6
	500 V	P	kW	4	4	4	4
	660/690 V	P	kW	4	4	4	4
AC-4 duty							
Rated operational current AC-4 open, 50 – 60 Hz, 3 pole ¹⁾	220/230 V	I_e	A	6.6	6.6	6.6	6.6
	240 V	I_e	A	6.6	6.6	6.6	6.6
	380/400 V	I_e	A	6.6	6.6	6.6	6.6
	415 V	I_e	A	6.6	6.6	6.6	6.6
	440 V	I_e	A	6.6	6.6	6.6	6.6
	500 V	I_e	A	5	5	5	5
	660/690 V	I_e	A	3.4	3.4	3.4	3.4
Motor rating	220/230 V	P	kW	1.5	1.5	1.5	1.5
	240 V	P	kW	1.8	1.8	1.8	1.8
	380/400 V	P	kW	3	3	3	3
	415 V	P	kW	3.1	3.1	3.1	3.1
	440 V	P	kW	3.3	3.3	3.3	3.3
	500 V	P	kW	3	3	3	3
	660/690 V	P	kW	3	3	3	3

Notes

¹⁾ At maximum permissible ambient temperature.



					DILEM	DILEM-G	DILEM4	DILEM4-G
DC								
Operations					→ Engineering DC circuits			
Rated operational current, open								
DC – 1	12 V	I_e	A	20	20	–	–	
	24 V	I_e	A	20	20	–	–	
	60 V	I_e	A	20	20	–	–	
	110 V	I_e	A	20	20	–	–	
	220 V	I_e	A	20	20	–	–	
DC – 3	12 V	I_e	A	8	8	–	–	
	24 V	I_e	A	8	8	–	–	
	60 V	I_e	A	4	4	–	–	
	110 V	I_e	A	3	3	–	–	
	220 V	I_e	A	–	–	1	1	
DC – 5	12 V	I_e	A	2.5	2.5	–	–	
	24 V	I_e	A	2.5	2.5	–	–	
	60 V	I_e	A	2.5	2.5	–	–	
	110 V	I_e	A	1.5	1.5	2.5	2.5	
	220 V	I_e	A	0.3	0.3	1	1	
Current heat losses (3- or 4-pole)								
to I_{th}			W	2	3.5	2.7	4.7	
at I_e to AC-3/400 V			W	0.5	0.7	–	–	
Magnet systems								
Voltage tolerance								
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz			Pick-up	$\times U_c$	0.8...1.1		0.8...1.1	
Dual-frequency coil 50/60 Hz			Pick-up	$\times U_c$	0.85...1.1		0.85...1.1	
DC operated			Pick-up	$\times U_c$		0.8...1.1		0.85...1.1
Power consumption								
AC operation								
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz			Pick-up	VA	25	–	25	–
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz			Pick-up	W	22	–	22	–
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz			Sealing	VA	4.6	–	4.6	–
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz			Sealing	W	1.3	–	1.3	–
Dual-frequency coil 50/60 Hz at 50 Hz			Pick-up	VA	30	–	30	–
Dual-frequency coil 50/60 Hz at 50 Hz			Pick-up	W	26	–	26	–
Dual-frequency coil 50/60 Hz at 50 Hz			Sealing	VA	5.4	–	5.4	–
Dual-frequency coil 50/60 Hz at 50 Hz			Sealing	W	1.6	–	1.6	–
Dual-frequency coil 50/60 Hz at 60 Hz			Pick-up	VA	29	–	29	–
Dual-frequency coil 50/60 Hz at 60 Hz			Pick-up	W	24	–	24	–
Dual-frequency coil 50/60 Hz at 60 Hz			Sealing	VA	3.9	–	3.9	–
Dual-frequency coil 50/60 Hz at 60 Hz			Sealing	W	1.1	–	1.1	–
DC operation ¹⁾								
Power consumption Pull-in = Sealing				VA/W	–	2.6	–	2.6
Duty factor				% DF	100	100	100	100
Switching times at 100 % U_c								
Make contact								
Closing delay								
Closing delay min.				ms	14	26	14	26
Closing delay max.				ms	21	35	21	35
Opening delay								
Opening delay min.				ms	8	15	8	15
Opening delay max.				ms	18	25	18	25
Closing delay with top mounting auxiliary contact				ms	max. 45	max. 70	max. 45	max. 70
Reversing contactors								
Changeover time at 110 % U_c								
Changeover time min.				ms	16	40	16	40
Changeover time max.				ms	21	50	21	50
Arcing time at 690 V AC				ms	max. 12	max. 12	max. 12	max. 12
Coil								
Lifespan, mechanical; Coil 50/60 Hz				at 50 Hz	7		7	

Notes

¹⁾ Smoothed DC or three-phase bridge rectifier

Mini contactor relays, contactor combinations

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DILEM

				DILEM4	DILEM4-G
Auxiliary contacts					
Positive operating contacts to ZH 1/457, including auxiliary contact module				Yes	Yes
Rated impulse withstand voltage		U_{imp}	V AC	6000	6000
Overvoltage category/pollution degree				III/3	III/3
Rated insulation voltage		U_i	V AC	690	690
Rated operational voltage		U_e	V AC	600	600
Safe isolation to VDE 0106 Part 101 and Part 101/A1					
between coil and auxiliary contacts			V AC	300	300
between the auxiliary contacts			V AC	300	300
Rated operational current					
AC-15	220/240 V	I_e	A	6	4
		I_e	A	3	2
	380/415 V	I_e	A	1.5	1.5
DC-13	1	24 V	A	2.5	2.5
DC-13 L/R ≤ 15 ms	2	60 V	A	2.5	2.5
Contacts in series:	3	100 V	A	1.5	1.5
	3	220 V	A	0.5	0.5
Conventional thermal current				I_{th}	A
Control circuit reliability (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)				λ	Failure rate
				<10 ⁻⁸ , < one failure at 100 million operations	
Component lifespan at $U_e = 240$ V					
AC-15		Operations	× 10 ⁶	0.2	0.2
DC-13 ¹⁾	L/R = 50 ms: 2 contacts in series at $I_e = 0.5$ A	Operations	× 10 ⁶	0.15	0.15
Short-circuit rating without welding					
Maximum overcurrent protective device				PKZM0-4	PKZM0-4
Short-circuit protection maximum fuse	500 V		A gG/gL	6	6
	500 V		A fast	10	10
Current heat loss at I_{th}					
Per contact			W	0.2	0.2

Notes

¹⁾ Making and breaking conditions to DC-13, time L/R constant as stated

Mini contactor relays



DILM7 ... DILM170

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			DILM7	DILM9	DILM12	DILM15	DILM17	DILM25
General								
Standards			IEC/EN 60947, VDE 0660, UL, CSA					
Lifespan, mechanical								
AC operated	Operations	× 10 ⁶	10	10	10	10	10	10
DC operated	Operations	× 10 ⁶	10	10	10	10	10	10
Operating frequency, mechanical								
Lifespan, mechanical	Operations/h		9000	9000	9000	5000	5000	5000
DC operated	Operations/h		9000	9000	9000	5000	5000	5000
Maximum operating frequency electrical (Contactors without overload relay)			See characteristic curve					
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclical, to IEC 60068-2-30					
Ambient temperature								
Open		°C	25...60	25...60	25...60	25...60	25...60	25...60
Enclosed		°C	25...40	25...40	25...40	25...40	25...40	25...40
Storage		°C	-40...80	-40...80	-40...80	-40...80	-40...80	-40...80
Mounting position, AC- and DC operated								
Mechanical shock resistance (IEC/EN 60068-2-27)								
Half-sinusoidal shock, 10 ms								
Main contacts								
N/O contact		g	10	10	10	10	10	10
Auxiliary contacts								
N/O contact		g	7	7	7	7	7	7
N/C contact		g	5	5	5	5	5	5
Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted								
Half-sinusoidal shock, 10 ms								
Main contacts								
Thickness of material for busbar max.		g	5.7	5.7	5.7	5.7	6.9	6.9
Auxiliary contacts								
Min. rated current = rated uninterrupted current		g	3.4	3.4	3.4	3.4	5.3	5.3
N/C contact		g	3.4	3.4	3.4	3.4	3.5	3.5
Protection type			IP20 IP20 IP20 IP20 IP00 IP00					
Protection against direct contact when actuated from front (IEC 536)			Finger- and back-of-hand proof					
Weight								
AC operated		kg	0.23	0.23	0.23	0.23	0.42	0.42
DC operated		kg	0.28	0.28	0.28	0.28	0.48	0.48
Screw connector terminals								
Terminal capacity main cable								
Solid		mm ²	1 × (0.75 - 4) 2 × (0.75 - 2.5)			1 × (0.75 - 16) 2 × (0.75 - 10)		
Flexible with ferrule		mm ²	1 × (0.75 - 2.5) 2 × (0.75 - 2.5)			1 × (0.75 - 16) 2 × (0.75 - 10)		
Stranded		mm ²				1 × 16	1 × 16	
Solid or stranded		AWG	18 - 10	18 - 10	18 - 10	18 - 10	18 - 6	18 - 6
Flat conductor	Number of segments × width × thickness	mm						
Terminal capacity control circuit cables								
Solid		mm ²	1 × (0.75 - 4) 2 × (0.75 - 2.5)			1 × (0.75 - 4) 2 × (0.75 - 4)		
Flexible with ferrule		mm ²	1 × (0.75 - 1.5) 2 × (0.75 - 1.5)			1 × (0.75 - 1.5) 2 × (0.75 - 1.5)		
Solid or stranded		AWG	18 - 10	18 - 10	18 - 10	18 - 10	18 - 14	18 - 14

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DILM7 ... DILM170

DILM32	DILM40	DILM50	DILM65 DILM72	DILM80	DILM95	DILM115	DILM150	DILM170
IEC/EN 60947, VDE 0660, UL, CSA								
10	10	10	10	10	10	10	10	10
10	10	10	10	10	10	10	10	10
5000	5000	5000	5000	3600	3600	3600	3600	3000
5000	5000	5000	5000	3600	3600	3600	3600	3000
See characteristic curve								
Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclical, to IEC 60068-2-30								
25...60	25...60	25...60	25...60	25...60	25...60	25...60	25...60	25...60
25...40	25...40	25...40	25...40	25...40	25...40	25...40	25...40	25...40
-40...80	-40...80	-40...80	-40...80	-40...80	-40...80	-40...80	-40...80	-40...80
Mechanical shock resistance (IEC/EN 60068-2-27)								
Half-sinusoidal shock, 10 ms								
Main contacts								
10	10	10	10	10	10	10	10	10
Auxiliary contacts								
7	7	7	7	7	7	7	7	7
5	5	5	5	5	5	5	5	5
Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted								
Half-sinusoidal shock, 10 ms								
Main contacts								
6.9	10	10	10	10	10	10	10	10
Auxiliary contacts								
5.3	7	7	7	7	7	7	7	7
3.5	5	5	5	5	5	5	5	5
Protection type								
IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00
Protection against direct contact when actuated from front (IEC 536)								
Finger- and back-of-hand proof								
Weight								
0.42	0.9	0.9	0.9	2	2	2	2	2
0.48	1.1	1.1	1.1	2.1	2.1	2.1	2.1	2.1
Screw connector terminals								
Terminal capacity main cable								
1 × (0.75 - 16) 2 × (0.75 - 16)								
1 × (0.75 - 35) 2 × (0.75 - 25)						1 × (10 - 95) 2 × (10 - 70)		
1 × 16			1 × (16 - 50) 2 × (16 - 35)			1 × (16 - 95) 2 × (16 - 70)		
18 - 6			12 - 2		12 - 2		8...3/0	
			2 × (6 × 9 × 0.8)			2 × (6 × 16 × 0.8)		
Terminal capacity control circuit cables								
1 × (0.75 - 4) 2 × (0.75 - 4)								
1 × (0.75 - 2.5) 2 × (0.75 - 2.5)						1 × (0.75 - 2.5) 2 × (0.75 - 2.5)		
18 - 14			18 - 14		18 - 14		18 - 14	

DILM7 ... DILM170

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			DILM7	DILM9	DILM12	DILM15	DILM17	DILM25
General								
Main cable connection screw/bolt			M3.5	M3.5	M3.5	M3.5	M5	M5
Tightening torque		Nm	1.2	1.2	1.2	1.2	3	3
Control circuit cable connection screw/bolt			M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque		Nm	1.2	1.2	1.2	1.2	1.2	1.2
Tool								
Main cable								
Pozidriv screwdriver		Size	2	2	2	2	2	2
Hexagon socket-head spanner	SW	mm	-	-	-	-	-	-
Standard screwdriver		mm	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6
Control circuit cables								
Pozidriv screwdriver		Size	2	2	2	2	2	2
Standard screwdriver		mm	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6
Spring-loaded terminal connection								
Terminal capacity main cable								
Solid		mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)					
flexible		mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)					
flexible with ferrules		mm ²	1 × (0.75 – 1.5) 2 × (0.75 – 1.5)					
Solid or stranded		AWG	18 – 14	18 – 14	18 – 14			
Terminal capacity control circuit cables								
Solid		mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)					
Flexible		mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)					
Flexible with ferrule		mm ²	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)					
Solid or stranded		AWG	18 – 14	18 – 14	18 – 14	18 – 14	18 – 14	18 – 14
Tool								
Stripping length		mm	10	10	10	10	10	10
Screwdriver blade width		mm	3.5	3.5	3.5	3.5	3.5	3.5
Main conducting paths								
Rated impulse withstand voltage	U_{imp}	V AC	8000	8000	8000	8000	8000	8000
Overvoltage category/pollution degree			III/3	III/3	III/3	III/3	III/3	III/3
Rated insulation voltage	U_i	V AC	690	690	690	690	690	690
Rated operational voltage	U_e	V AC	690	690	690	690	690	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1								
between coil and contacts		V AC	400	400	400	400	440	440
between the contacts		V AC	400	400	400	400	440	440
Making capacity (p.f. to IEC/EN 60947)	Up to 690 V	A	112	112	144	155	238	350
Breaking capacity								
220/230 V		A	70	90	120	124	170	250
380/400 V		A	70	90	120	124	170	250
500 V		A	50	70	100	100	170	250
660/690 V		A	40	50	70	70	120	150
Short-circuit rating								
Short-circuit protection maximum fuse								
Type "2" coordination								
400 V	gG/gL 500 V	A	20	20	20	20	35	35
690 V	gG/gL 690 V	A	16	16	20	20	35	35
1000 V	gG/gL 1000 V	A	-	-	-	-	-	-
Type "1" coordination								
400 V	gG/gL 500 V	A	35	35	35	63	63	100
690 V	gG/gL 690 V	A	20	20	25	50	50	50

Contactors DILM, DILH



DILM7 ... DILM170

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DILM32	DILM40	DILM50	DILM65 DILM72	DILM80	DILM95	DILM115	DILM150	DILM170
M5	M6	M6	M6	M10	M10	M10	M10	M10
3	3.3	3.3	3.3	14	14	14	14	14
M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
2	2	2	2	-	-	-	-	-
-	-	-	-	5	5	5	5	5
0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6					
2	2	2	2	2	2	2	2	2
0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6	0.8 × 5.5 1 × 6
1 × (0.75 – 2.5) 2 × (0.75 – 2.5)								
1 × (0.75 – 2.5) 2 × (0.75 – 2.5)								
1 × (0.75 – 2.5) 2 × (0.75 – 2.5)								
18 – 14	18 – 14	18 – 14	18 – 14	18 – 14	18 – 14	18 – 14	18 – 14	18 – 14
10	10	10	10	10	10	10	10	10
3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
8000	8000	8000	8000	8000	8000	8000	8000	8000
III/3	III/3	III/3	III/3	III/3	III/3	III/3	III/3	III/3
690	690	690	690	1000	1000	1000	1000	1000
690	690	690	690	1000	1000	1000	1000	1000
440	440	440	440	690	690	690	690	690
440	440	440	440	690	690	690	690	690
384	560	700	910	1120	1330	1610	2100	2100
320	400	500	650	800	950	1150	1500	1500
320	400	500	650	800	950	1150	1500	1500
320	400	500	650	800	950	1150	1500	1500
180	250	320	370	650	800	1100	1200	1320
63	63	80	125	160	160	250	250	400
35	50	63	80	160	160	250	250	250
-	-	-	-	-	-	-	-	-
125	125	160	250	250	250	250	250	400
63	80	80	100	200	200	250	250	250

Contactors DILM, DILH



DILM7 ... DILM170

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				DILM7	DILM9	DILM12	DILM15	DILM17	DILM25		
AC											
AC-1 duty											
conv. therm. current 3 pole 50 – 60 Hz	open	at 40 °C	I_{th}	A	22	22	22	22	40	45	
		at 50 °C	I_{th}	A	21	21	21	21	38	43	
		at 55 °C	I_{th}	A	21	21	21	21	37	42	
		at 60 °C	I_{th}	A	20	20	20	20	35	40	
	enclosed			I_{th}	A	18	18	18	18	32	36
		Conventional free air thermal current, 1 pole	open	I_{th}	A	50	50	50	50	88	100
			enclosed	I_{th}	A	45	45	45	45	80	90
		AC-3 duty									
Rated operational current AC-3 open, 50 – 220/230 V 60 Hz, 3 pole				I_e	A	7	9	12	15.5	18	25
	240 V		I_e	A	7	9	12	15.5	18	25	
	380/400 V		I_e	A	7	9	12	15.5	18	25	
	415 V		I_e	A	7	9	12	15.5	18	25	
	440 V		I_e	A	7	9	12	15.5	18	25	
	500 V		I_e	A	5	7	10	12.5	18	25	
	660/690 V		I_e	A	4	5	7	9	12	15	
	1000 V		I_e	A	–	–	–	–	–	–	
Motor rating											
	220/230 V	P	kW	2.2	2.5	3.5	4	5	7.5		
	240V	P	kW	2.2	3	4	4.6	5.5	8.5		
	380/400 V	P	kW	3	4	5.5	7.5	7.5	11		
	415 V	P	kW	4	5.5	7	8	10	14.5		
	440 V	P	kW	4.5	5.5	7.5	8.4	10.5	15.5		
	500 V	P	kW	3.5	4.5	7	7.5	12	17.5		
	660/690 V	P	kW	3.5	4.5	6.5	7	11	14		
	1000 V	P	kW	–	–	–	–	–	–		
AC-4 duty											
Rated operational current AC-4 open, 50 – 220/230 V 60 Hz, 3 pole				I_e	A	5	6	7	7	10	13
	240 V		I_e	A	5	6	7	7	10	13	
	380/400 V		I_e	A	5	6	7	7	10	13	
	415 V		I_e	A	5	6	7	7	10	13	
	440 V		I_e	A	5	6	7	7	10	13	
	500 V		I_e	A	4.5	5	6	6	10	13	
	660/690 V		I_e	A	4	4.5	5	5	8	10	
	1000 V		I_e	A	–	–	–	–	–	–	
Motor rating											
	220/230 V	P	kW	1	1.5	2	2	2.5	3.5		
	240 V	P	kW	1.5	1.6	2.2	2.2	3	4		
	380/400 V	P	kW	2.2	2.5	3	3	4.5	6		
	415 V	P	kW	2.3	2.8	3.4	3.4	5	6.5		
	440 V	P	kW	2.4	3	3.6	3.6	5.5	7		
	500 V	P	kW	2.5	2.8	3.5	3.5	6	8		
	660/690 V	P	kW	2.9	3.6	4.4	4.4	6.5	8.5		
	1000 V	P	kW	–	–	–	–	–	–		
DC											
Operations											
of three-phase capacitors open											
DC-1 operation											
	60 V	I_e	A	20	20	20	20	35	40		
	110 V	I_e	A	20	20	20	20	35	40		
	220 V	I_e	A	15	15	15	15	35	40		
	440 V	I_e	A	1	1.3	1.3	1.3	2.9	2.9		
DC-3 operation											
	60 V	I_e	A	20	20	20	20	35	35		
	110 V	I_e	A	20	20	20	20	35	35		
	220 V	I_e	A	1.5	1.5	1.5	1.5	10	10		
	440 V	I_e	A	0.2	0.2	0.2	0.2	0.6	0.6		
DC-5 operation											
	60 V	I_e	A	20	20	20	20	35	35		
	110 V	I_e	A	20	20	20	20	35	35		
	220 V	I_e	A	1.5	1.5	1.5	1.5	10	10		
	440 V	I_e	A	0.2	0.2	0.2	0.2	0.6	0.6		

Contactors DILM, DILH



DILM7 ... DILM170

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DILM32	DILM40	DILM50	DILM65 DILM72	DILM80	DILM95	DILM115	DILM150	DILM170
45	60	80	98	110	130	160	190	225
43	57	71	88	98	125	142	180	200
42	55	68	83	94	115	135	170	190
40	50	65	80	90	110	130	160	185
36	45	58	72	80	100	115	144	166
100	125	162	200	225	275	325	400	460
90	112	145	180	200	250	285	360	415
32	40	50	65 72	80	95	115	150	170
32	40	50	65 72	80	95	115	150	170
32	40	50	65 72	80	95	115	150	170
32	40	50	65 72	80	95	115	150	170
32	40	50	65 72	80	95	115	150	170
18	25	32	37 37	65	80	93	100	150
–	–	–	–	–	–	–	–	–
10	12.5	15.5	20 22	25	30	37	48	52
11	13.5	17	22 25	27.5	4	40	52	57
15	18.5	22	30 37	37	45	55	75	90
19	24	30	39 41	48	57	70	91	100
20	25	32	41 44	51	60	75	95	105
23	28	36	47 45	58	70	85	110	120
17	23	30	35 35	63	75	90	96	140
–	–	–	–	–	–	–	–	–
15	18	21	25	40	50	55	65	65
15	18	21	25	40	50	55	65	65
15	18	21	25	40	50	55	65	65
15	18	21	25	40	50	55	65	65
15	18	21	25	40	50	55	65	65
12	14	17	20	27	37	45	50	50
–	–	–	–	–	–	–	–	–
4	5	6	7	12	16	17	20	20
4.5	5.5	6.5	7.5	13	17	19	22	22
7	9	10	12	20	26	28	33	33
7.5	9.5	11	13	24	30	33	39	39
8	10	12	14	25	32	35	41	41
9	11	13	16	29	36	40	47	47
10	12	14	17	26	35	43	48	48
–	–	–	–	–	–	–	–	–
40	50	60	72	110	110	160	160	160
40	50	50	72	110	110	160	160	160
40	45	45	65	70	70	90	90	90
2.9	2.9	2.9	2.9	4.5	4.5	4.5	4.5	4.5
40	50	60	72	110	110	160	160	160
40	50	50	72	110	110	160	160	160
25	25	25	35	35	35	40	40	40
0.6	0.6	0.6	0.6	1	1	1	1	1
40	50	60	72	110	110	160	160	160
40	50	50	72	110	110	160	160	160
10	25	25	35	35	35	40	40	40
0.6	0.6	0.6	0.6	1	1	1	1	1

Contactors DILM, DILH



DILM7 ... DILM170

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			DILM7	DILM9	DILM12	DILM15	DILM17	DILM25
Current heat loss (3 pole)								
Current heat loss at I _{th}	W		3	3	3	3	7.3	9.6
Current heat loss at I _e to AC-3/400 V	W		0.37	0.6	1.1	1.8	1.9	3.8
Impedance per pole	mΩ		2.5	2.5	2.5	2.5	2	2
Magnet systems								
Voltage tolerance								
AC operated	Pick-up	× U _c	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1
Drop-out voltage AC operated	Drop-out	× U _c	0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6
DC operated ³⁾	Pick-up	× U _c	0.8...1.1	0.8...1.1 ¹⁾	0.8...1.1 ¹⁾	0.8...1.1 ¹⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾
DC operated ³⁾	Drop-out	× U _c	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6
Power consumption of the coil in a cold state and 1.0 × U _c								
50 Hz	Pick-up	VA	24	24	24	24	52	52
50 Hz	Sealing	VA	3.4	3.4	3.4	3.4	7.1	7.1
50 Hz	Sealing	W	1.2	1.2	1.2	1.2	2.1	2.1
60 Hz	Pick-up	VA	30	30	30	30	67	67
60 Hz	Sealing	VA	4.4	4.4	4.4	4.4	8.7	8.7
60 Hz	Sealing	W	1.4	1.4	1.4	1.4	2.6	2.6
50/60 Hz	Pick-up	VA	27	27	27	27	62	62
			25	25	25	25	58	58
50/60 Hz	Sealing	VA	4.2	4.2	4.2	4.2	9.1	9.1
			3.3	3.3	3.3	3.3	6.5	6.5
50/60 Hz	Sealing	W	1.4	1.4	1.4	1.4	2.5	2.5
			1.2	1.2	1.2	1.2	2	2
DC operated	Pick-up	W	3	3	4.5	4.5	12	12
DC operated	Sealing	W	3	3	4.5	4.5	0.5	0.5
Duty factor	% DF		100	100	100	100	100	100
Switching times at 100 % U _c (approximate values)								
Main contacts								
AC operated								
Closing delay	ms		15...21	15...21	15...21	15...21	16...22	16...22
Opening delay	ms		9...18	9...18	9...18	9...18	8...14	8...14
DC operated								
Closing delay	ms		31	31	31	31	47	47
Opening delay	ms		12	12	12	12	30	30
Arcing time	ms		10	10	10	10	10	10
Permissible residual current with actuation of A1 – A2 by the electronics (with 0 signal).	mA		≤ –	≤ –	≤ –	≤ –	≤ –	≤ –
Lifespan, mechanical; Coil 50/60 Hz	at 50 Hz		Mechanical lifespan at 50 Hz approx. 30% lower than → Technical dat, general					
Electromagnetic compatibility (EMC)								
Emitted interference			to EN 60947-1					
Interference immunity			to EN 60947-1					

Notes

¹⁾ at 24 V: 0.7 – 1.3 without additional auxiliary contact modules and ambient temperature + 40 °C

²⁾

RDC 24 (U_{min} 24 V DC/U_{max} 27 V DC)
 RDC 60 (U_{min} 48 V DC/U_{max} 60 V DC)
 RDC 130 (U_{min} 110 V DC/U_{max} 130 V DC)
 RDC 240 (U_{min} 200 V DC/U_{max} 240 V DC)

Example:

³⁾ U_c = 0.7 × U_{min} – 1.2 × U_{max}

DILM7 ... DILM170

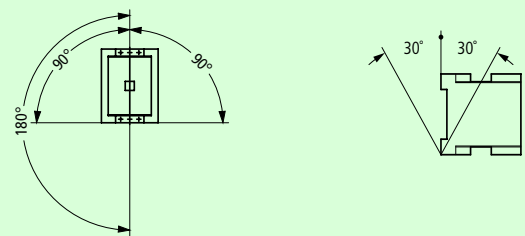
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DILM32	DILM40	DILM50	DILM65 DILM72	DILM80	DILM95	DILM115	DILM150	DILM170
12.1	11.3	19	28.8	12.2	18.2	20.3	30.7	41.1
6.1	7.2	11.3	19 23	9.6	13.5	15.9	27	34.7
2	1.5	1.5	1.5	0.5	0.5	0.4	0.4	0.4
0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.15	0.8...1.15	0.8...1.15
0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6	0.25...0.6	0.25...0.6	0.25...0.6
0.7...1.2 ²⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾	0.7...1.2 ²⁾
0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6	0.15...0.6
52	149	149	149	310	310	180	180	180
7.1	16	16	16	26	26	3.1	3.1	3.1
2.1	4.3	4.3	4.3	5.8	5.8	2.1	2.1	2.1
67	178	178	178	345	345	170	170	170
8.7	19	19	19	30	30	3.1	3.1	3.1
2.6	5.3	5.3	5.3	7.1	7.1	2.1	2.1	2.1
62	168	168	168	372	372	170	170	170
58	154	154	154	328	328	170	170	170
9.1	22	22	22	37.1	37.1	3.1	3.1	3.1
6.5	14	14	14	22.6	22.6	3.1	3.1	3.1
2.5	5.3	5.3	5.3	7.5	7.5	2.1	2.1	2.1
2	4.3	4.3	4.3	6.1	6.1	2.1	2.1	2.1
12	24	24	24	90	90	149	149	149
0.5	0.5	0.5	0.5	1.3	1.3	2.1	2.1	2.1
100	100	100	100	100	100	100	100	100
16...22	12...18	12...18	12...18	14...20	14...20	28...33	28...33	28...33
8...14	8...13	8...13	8...13	9...14	9...14	35...41	35...41	35...41
47	54	54	54	45	45	35	35	35
30	24	24	24	34	34	30	30	30
10	10	10	10	15	15	15	15	15
≤ –	≤ –	≤ –	≤ –	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
Mechanical lifespan at 50 Hz approx. 30% lower than → Technical dat, general								
to EN 60947-1								
to EN 60947-1								

DILM185...DILM1600, DILH

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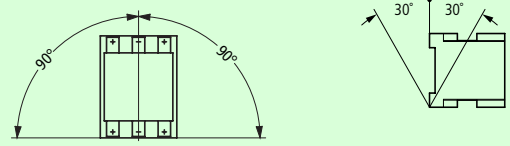
			Contactors		
			DILM185	DILM225 DILM250	DILM300 DILM400
General					
Standards			IEC/EN 60947, VDE 0660, UL, CSA		
Lifespan, mechanical					
AC operated	Operations	× 10 ⁶	10	10	7
DC operated	Operations	× 10 ⁶	10	10	7
Operating frequency, mechanical					
AC operated	Operations/h		3000	3000	2000
DC operated	Operations/h		3000	3000	2000
Maximum operating frequency electrical (Contactors without overload relay)			Page 05/070		
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclical, to IEC 60068-2-30		
Ambient temperature					
Open		°C	25...60	25...60	25...60
Enclosed		°C	25...40	25...40	25...40
Storage		°C	-40...80	-40...80	-40...80
Mounting position, AC- and DC operated					
Mechanical shock resistance (IEC/EN 60068-2-27)					
Half-sinusoidal shock, 20 ms					
Main contacts					
N/O contact		g	10	10	10
Auxiliary contacts					
N/O contact		g	10	10	10
N/C contact		g	8	8	8
Protection type			IP00 IP00 IP00		
Protection against direct contact when actuated from front (IEC 536)			finger and back-of-hand proof with terminal shroud or terminal block		
Weight			kg 6.5 6.5 8		
Terminal capacity main cable					
Flexible with cable lug			mm ² 35 – 95 50 – 240 50 – 240		
Stranded with cable lug			mm ² 50 – 120 70 – 240 70 – 240		
Solid or stranded			AWG 1/0 – 250 MCM 2/0 – 500 MCM 2/0 – 500 MCM		
Busbar	Width	mm	20	20 25	25
Main cable connection screw/bolt			M10 M10 M10		
Tightening torque			Nm 24 24 24		
Terminal capacity control circuit cables					
Solid			mm ² 1 × (0.75 – 2.5) 2 × (0.75 – 2.5)		
Flexible with ferrule			mm ² 1 × (0.75 – 2.5) 2 × (0.75 – 2.5)		
Solid or stranded			AWG 2 × (18 – 12)		
Control circuit cable connection screw/bolt			M3.5 M3.5 M3.5		
Tightening torque			Nm 1.2 1.2 1.2		
Tool					
Main cable					
Open-end spanner		mm	16	16	16
Control circuit cables					
Pozidriv screwdriver		Size	2	2	2

Contactors DILM, DILH



DILM185...DILM1600, DILH

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DILM500	DILM580 DILM650	DILM750 DILM820	DILM1000	DILM1600	DILH1400 DILH2000
IEC/EN 60947, VDE 0660, UL, CSA					
7	5	5	5	5	5
7	5	5	5	5	5
2000	1000	1000	1000	1000	1000
2000	1000	1000	1000	1000	1000
Page 05/070					
Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclical, to IEC 60068-2-30					
25...60	25...60	25...60	25...60	25...60	25...60
25...40	25...40	25...40	25...40	25...40	25...40
-40...80	-40...80	-40...80	-40...80	-40...80	-40...80
					
10	10	10	10	10	10
10	10	10	10	10	10
8	8	8	8	8	8
IP00	IP00	IP00	IP00	IP00	IP00
finger and back-of-hand proof with terminal shroud or terminal block					
8	15	15	15	32	15 32
50 – 240	50 – 240	50 – 240	50 – 240		
70 – 240	70 – 240	70 – 240	70 – 240		
2/0 – 500 MCM	2/0 – 500 MCM	2/0 – 500 MCM	2/0 – 500 MCM		
30	50	60	60	100	80 100
M10	M10	M12	M12	M12	M12
24	24	35	35	35	35
1 × (0.75 – 2.5) 2 × (0.75 – 2.5)					
1 × (0.75 – 2.5) 2 × (0.75 – 2.5)					
2 × (18 – 12)					
M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
1.2	1.2	1.2	1.2	1.2	1.2
16	16	18	18	18	18
2	2	2	2	2	2

Contactors DILM, DILH



			Contactors		
			DILM185	DILM225 DILM250	DILM300 DILM400
Main conducting paths					
Rated impulse withstand voltage	U_{imp}	V AC	8000	8000	8000
Overvoltage category/pollution degree			III/3	III/3	III/3
Rated insulation voltage	U_i	V AC	1000	1000	1000
Rated operational voltage	U_e	V AC	1000	1000	1000
Safe isolation to VDE 0106 Part 101 and Part 101/A1					
between coil and contacts		V AC	500	500	500
between the contacts		V AC	500	500	500
Making capacity (p.f. to IEC/EN 60947)		A	3000	3000	5500
Breaking capacity					
220/230 V		A	2500	2500	5000
380/400 V		A	2500	2500	5000
500 V		A	2500	2500	5000
660/690 V		A	2500	2500	5000
1000 V		A	760	760	950
Component lifespan			→ Engineering guidelines		
Short-circuit rating					
Short-circuit protection maximum fuse					
Type "2" coordination					
400 V	gG/gL 500 V	A	315	315	500
690 V	gG/gL 690 V	A	315	315	500
1000 V	gG/gL 1000 V	A	160	160	200
Type "1" coordination					
400 V	gG/gL 500 V	A	400	400	630
690 V	gG/gL 690 V	A	400	400	630
1000 V	gG/gL 1000 V	A	200	200	250
AC					
AC-1 duty					
conv. therm. current 3 pole 50 – 60 Hz					
open					
at 40 °C	I_{th}	A	337	386 429	490 612
at 50 °C	I_{th}	A	301	345 383	438 548
at 55 °C	I_{th}	A	287	329 366	418 522
at 60 °C	I_{th}	A	275	315 350	400 500
enclosed					
	I_{th}	A	250	275 300	350 450
Conventional free air thermal current, 1 pole					
open ¹⁾	I_{th}	A	685	785 875	1000 1250
enclosed ¹⁾	I_{th}	A	625	685 750	875 1125
AC-3 duty					
Rated operational current AC-3 open, 50 – 60 Hz, 3 pole					
220/230 V	I_e	A	185	225 250	300 400
240 V	I_e	A	185	225 250	300 400
380/400 V	I_e	A	185	225 250	300 400
415 V	I_e	A	185	225 250	300 400
440 V	I_e	A	185	225 250	300 400
500 V	I_e	A	185	225 250	300 400
660/690 V	I_e	A	185	225 250	300 360
1000 V	I_e	A	76	76 76	95 95
Motor rating					
220/230 V	P	kW	55	70 75	90 125
240V	P	kW	62	75 85	100 132
380/400 V	P	kW	90	110 132	160 200
415 V	P	kW	110	132 148	180 240
440 V	P	kW	90	110 132	160 200
500 V	P	kW	132	160 180	215 290
660/690 V	P	kW	175	215 240	286 344
1000 V	P	kW	108	108 108	132 132

Notes

- ¹⁾ at maximum permissible ambient temperature
- ²⁾ on request
- ³⁾ up to 690 V

		DILM580 DILM650		DILM750 DILM820		DILM1000		DILM1600		DILH1400 DILH2000	
8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000	8000
III/3	III/3	III/3	III/3	III/3	III/3	III/3	III/3	III/3	III/3	III/3	III/3
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
500	500	500	500	500	500	500	500	500	500	500	500
500	500	500	500	500	500	500	500	500	500	500	500
5500	7800	9840	9840	9840	19000	9840	19000	19000	19000	9840	9840
5000	6500	8200	8200	8200	16000	8200	16000	16000	16000	8200	8200
5000	6500	8200	8200	8200	16000	8200	16000	16000	16000	8200	8200
5000	6500	8200	8200	8200	16000	8200	16000	16000	16000	8200	8200
5000	6500	8200	8200	8200	16000	8200	16000	16000	16000	8200	8200
950	4350	5800	5800	5800	5800	5800	5800	5800	5800	5800	5800
→ Engineering guidelines											
500	630	630	630	630	–	630	–	–	–	–	–
500	630	630	630	630	–	630	–	–	–	–	–
200	500	630	630	630	–	630	–	–	–	–	–
630	1000	1200	1200	1200	–	1200	–	–	–	–	–
630	1000	1200	1200	1200	–	1200	–	–	–	–	–
250	630	800	800	800	–	800	–	–	–	–	–
857	980 1041	1102 1225	1225	1225	2200	1714 ³⁾ 2450 ³⁾	–	–	–	–	–
767	876 931	986 1095	1095	1095	1970	1533 ³⁾ 2190 ³⁾	–	–	–	–	–
731	836 888	940 1044	1044	1044	1880	1462 ³⁾ 2089 ³⁾	–	–	–	–	–
700	800 850	900 1000	1000	1000	1800	1400 ³⁾ 2000 ³⁾	–	–	–	–	–
650	–	–	–	–	–	–	–	–	–	–	–
1750	2000 2125	2250 2500	2500	2500	4500	3500 5000	–	–	–	–	–
1600	–	–	–	–	–	–	–	–	–	–	–
500	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
500	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
500	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
500	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
500	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
500	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
500	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
360	580 650	750 820	1000	1000	1600	–	–	–	–	–	–
95	435 435	580 580	750	750	2)	–	–	–	–	–	2)
155	185 205	240 260	315	315	500	–	–	–	–	–	–
170	200 225	260 285	340	340	550	–	–	–	–	–	–
250	315 355	400 450	560	560	900	–	–	–	–	–	–
300	348 390	455 500	610	610	930	–	–	–	–	–	–
250	370 420	480 450	650	650	1000	–	–	–	–	–	–
360	420 470	550 600	730	730	1180	–	–	–	–	–	–
344	560 630	720 750	1000	1000	1600	–	–	–	–	–	–
132	600 600	800 800	1100	1100	2)	–	–	–	–	–	2)

DILM185...DILM1600, DILH

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Contactors		DILM185		DILM225 DILM250		DILM300 DILM400	
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AC							
AC-4 duty							
Rated operational current AC-4 open, 50 – 60 Hz, 3 pole							
220/230 V	I_e	A	136	164	200	240	296
240 V	I_e	A	136	164	200	240	296
380/400 V	I_e	A	136	164	200	240	296
415 V	I_e	A	136	164	200	240	296
440 V	I_e	A	136	164	200	240	296
500 V	I_e	A	136	164	200	240	296
660/690 V	I_e	A	136	164	200	240	296
1000 V	I_e	A	76	76	76	95	95
Motor rating							
220/230 V	P	kW	41	51	62	75	92
240 V	P	kW	45	54	68	82	101
380/400 V	P	kW	75	90	110	132	160
415 V	P	kW	80	96	117	142	176
440 V	P	kW	85	102	125	140	186
500 V	P	kW	96	116	143	172	214
660/690 V	P	kW	127	155	189	229	283
1000 V	P	kW	108	108	108	132	132

Condensator operation							
Individual compensation, rated operational current I_e of three-phase capacitors open							
up to 525 V		A	220	220		307	
690 V		A	133	133		177	
Max. inrush current peak		$\times I_e$	30	30		30	
Component lifespan	Operations	$\times 10^6$	0.1	0.1		0.1	
Max. operating frequency		Ops/h	200	200		200	

DC
Operations → Engineering DC circuits

of three-phase capacitors open							
DC-1 operation							
60 V	I_e	A	300	300		400	
110 V	I_e	A	300	300		400	
220 V	I_e	A	300	300		400	
440 V	I_e	A	11	11		11	
DC-3 operation							
60 V	I_e	A	300	300		400	
110 V	I_e	A	300	300		400	
220 V	I_e	A	300	300		400	
DC-5 operation							
60 V	I_e	A	300	300		400	
110 V	I_e	A	300	300		400	
220 V	I_e	A	300	300		400	

Current heat loss (3 pole)							
Current heat loss at I_{th}		W	34	45	55	37	58
Current heat loss at I_e to AC-3/400 V		W	16	23	28	21	37

Notes ¹⁾ On request

DILM185...DILM1600, DILH

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DILM500		DILM580 DILM650		DILM750 DILM820		DILM1000		DILM1600		DILH1400 DILH2000	
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360	456	512	576	656	800	1280					
360	456	512	576	656	800	1280					
360	456	512	576	656	800	1280					
360	456	512	576	656	800	1280					
360	456	512	576	656	800	1280					
360	456	512	576	656	800	1280					
296	456	512	576	656	800	1280					
95	348	348	464	464	700	1280	1)				
112	143	161	181	209	260	430					
122	156	176	200	228	280	450					
200	250	280	315	355	450	750					
216	274	307	346	394	490	770					
229	290	326	367	418	520	830					
260	330	370	417	474	590	940					
344	440	494	556	633	780	1300					
132	509	509	678	678	1000	1300	1)				

307	463		463		463						
177	265		265		265						
30	30		30		30						
0.1	0.1		0.1		0.1						
200	200		200		200						

→ Engineering DC circuits

400											
400											
400											
11											
400											
400											
400											
400											
400											
400											

113	61	69	78	96	96	155	188	192
58	32	41	54	65	96	123		

			Contactors DILM185	DILM225 DILM250	DILM300 DILM400
Magnet systems					
Voltage tolerance					
DILM... comfort series	Pick-up	$\times U_c$	$0.7 \times U_{c \min} - 1.15 \times U_{c \max}$		
DILM...-S standard series	Pick-up	$\times U_c$	$0.85 \times U_{c \min} - 1.1 \times U_{c \max}$		
DILM... comfort series	Drop-out	$\times U_c$	$0.2 \times U_{c \min} - 0.6 \times U_{c \min}$		
DILM...-S standard series	Drop-out	$\times U_c$	$0.2 \times U_{c \min} - 0.4 \times U_{c \max}$		
Power consumption of the coil in a cold state and $1.0 \times U_c$					
DILM... comfort series	Pick-up	VA	380 ²⁾	380 ²⁾	450 ²⁾
DILM... comfort series	Pick-up	W	250	250	350
DILM... comfort series	Sealing	VA	4.3	4.3	4.3
DILM... comfort series	Sealing	W	3.3	3.3	3.3
DILM...-S standard series	Pick-up	VA	360 ⁴⁾	360 ⁴⁾	715 ⁴⁾
DILM...-S standard series	Pick-up	W	325	325	645
DILM...-S standard series	Sealing	VA	4.3	4.3	4.3
DILM...-S standard series	Sealing	W	3.3	3.3	3.3
Duty factor		% DF	100	100	100
Switching times at 100 % U_c (approximate values)					
Main contacts					
DILM... comfort series					
Closing delay		ms	100	100	80
Opening delay		ms	80	80	80
DILM...-S standard series					
Closing delay		ms	50	50	50
Opening delay		ms	40	40	40
Behaviour in marginal and transitional conditions					
Sealing					
Voltage interruptions					
$(0 \dots 0.2 \times U_{c \min}) \leq 10 \text{ ms}$			Time is bridged successfully		
$(0 \dots 0.2 \times U_{c \min}) > 10 \text{ ms}$			Drop-out of the contactor		
Voltage drops					
$(0.2 \dots 0.6 \times U_{c \min}) \leq 12 \text{ ms}$			Time is bridged successfully		
$(0.2 \dots 0.6 \times U_{c \min}) > 12 \text{ ms}$			Drop-out of the contactor		
$(0.6 \dots 0.7 \times U_{c \min})$			Contactor remains switched on		
Excess voltage					
$(1.15 \dots 1.3 \times U_{c \max})$			Contactor remains switched on		
$(> 1.3 \times U_{c \max}) \leq 3 \text{ s}$			Contactor remains switched on		
$(> 1.3 \times U_{c \max}) > 3 \text{ s}$			Drop-out of the contactor		
Pick-up phase					
$(0 \dots 0.7 \times U_{c \min})$			Contactor does not switch on		
$(0.7 \times U_{c \min} \dots 1.15 \times U_{c \max})$			Contactor switches on with certainty		
$(> 1.15 \times U_{c \max})$			Contactor switches on with certainty		
Admissible transitional contact resistance (of the external control circuit device when actuating A11)		mΩ	≤ 500	≤ 500	≤ 500
Max. admissible residual current (when A11 is actuated from the electroncis, 0 signal)		mA	≤ 1	≤ 1	≤ 1
SPS signal level (A3 - A4) to IEC/EN 61131-2 (type 2)					
High		V	15	15	15
Low		V	5	5	5
Electromagnetic compatibility (EMC)					
Electromagnetic compatibility			This product is designed for operation in industrial environments (environment 2). The use in residential environments (environment 1) could cause electrical interference so that addition suppression must be planned.		

Notes

- ¹⁾ $U_{c \min}$, $U_{c \max}$, see ...
- ²⁾ Control transformer with $u_k \leq 0.6$
- ³⁾ Control transformer with $u_k \leq 0.7$
- ⁴⁾ up to 690 V

DILM500	DILM580 DILM650	DILM750 DILM820	DILM1000	DILM1600	DILH1400 DILH2000
$0.7 \times U_{c \min} - 1.15 \times U_{c \max}$					
$0.85 \times U_{c \min} - 1.1 \times U_{c \max}$					
$0.2 \times U_{c \min} - 0.6 \times U_{c \min}$					
$0.2 \times U_{c \min} - 0.4 \times U_{c \min}$					
450 ²⁾	800 ³⁾	800 ³⁾	800 ³⁾	1600 ³⁾	800 ³⁾ 1600 ³⁾
350	700	700	700	1400	700 1400
4.3	7.5	7.5	7.5	15	7.5 15
3.3	6.5	6.5	6.5	13	6.5 13
715 ⁴⁾	-	-	-	-	-
645	-	-	-	-	-
4.3	-	-	-	-	-
3.3	-	-	-	-	-
100	100	100	100	100	100
80	70	70	70	70	70
80	70	70	70	40	40
50	-	-	-	-	-
40	-	-	-	-	-
Time is bridged successfully					
Drop-out of the contactor					
Time is bridged successfully					
Drop-out of the contactor					
Contactor remains switched on					
Contactor remains switched on					
Contactor remains switched on					
Drop-out of the contactor					
Contactor does not switch on					
Contactor switches on with certainty					
Contactor switches on with certainty					
≤ 500	≤ 500	≤ 500	≤ 500	≤ 500	≤ 500
≤ 1	≤ 1	≤ 1	≤ 1	≤ 1	≤ 1
15	15	15	15	15	15
5	5	5	5	5	5
This product is designed for operation in industrial environments (environment 2). The use in residential environments (environment 1) could cause electrical interference so that addition suppression must be planned.					

DILK

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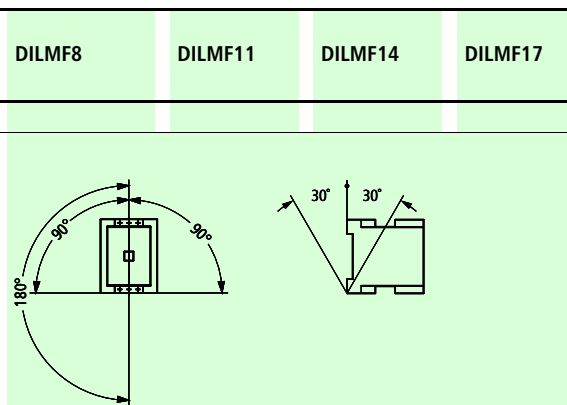
DILK			DILK12	DILK20	DILK25	DILK33	DILK50	
General								
Standards			IEC/EN 60947					
Ambient temperature								
Open	°C		25...60	25...60	25...60	25...60	25...60	
Enclosed	°C		25...40	25...40	25...40	25...40	25...40	
Mounting position								
Protection type			IP20	IP00	IP00	IP00	IP00	
Protection against direct contact when actuated from front (IEC 536)			Finger- and back-of-hand proof					
Weight Basic unit								
AC operated	kg		0.41	0.55	0.55	1	1	
Terminal capacity main cable								
Solid	mm ²		1 x (0.75 - 4)	1 x (0.75 - 16)	1 x (0.75 - 16)	1 x (2.5 - 16)	1 x (2.5 - 16)	
Flexible with ferrule	mm ²		1 x (0.75 - 2.5)	1 x (0.75 - 16)	1 x (0.75 - 16)	1 x (2.5 - 35)	1 x (2.5 - 35)	
Stranded	mm ²		—	1 x 16	1 x 16	1 x (16 - 50)	1 x (16 - 50)	
Solid or stranded	AWG		18 - 14	18 - 6	18 - 6	12 - 2	12 - 2	
Flat conductor	Number of segments × width × thickness	mm	—	—	—	1 x (6 x 9 x 0.8)	1 x (6 x 9 x 0.8)	
Group compensation								
60 Hz								
230 V	kVAr		7.5	11	15	20	25	
400 V	kVAr		12.5	20	25	33.3	50	
525 V	kVAr		16.7	25	33.3	40	65	
690 V	kVAr		20	33.3	40	55	85	
50/60 Hz								
Open								
230 V	I_e	A	18	29	38	50	72	
400 V	I_e	A	18	29	38	50	72	
525 V	I_e	A	18	29	38	50	72	
690 V	I_e	A	18	29	38	50	72	
of three-phase capacitors enclosed								
230 V	I_e	A	16	26	34	45	65	
400 V	I_e	A	16	26	34	45	65	
525 V	I_e	A	16	26	34	45	65	
690 V	I_e	A	16	26	34	45	65	
Making capacity (i-peak value) without damping			× I_e	180	180	180	180	180
Component lifespan			Operations	× 10 ⁶	0.15	0.15	0.15	0.15
Maximum operating frequency			Ops./h	120	120	120	120	120

			DILK12	DILK20	DILK25	DILK33	DILK50
Magnet systems							
Voltage tolerance							
AC operated	Pick-up	$\times U_c$	0.8...1.1	0.8...1.1	0.8...1.1	0.8...1.15	0.8...1.15
Drop-out voltage AC operated	Drop-out	$\times U_c$	0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6	0.3...0.6
Power consumption of the coil in a cold state and $1.0 \times U_c$							
50 Hz	Pick-up	VA	24	24	58	45	45
50 Hz	Sealing	VA	3.4	3.4	7.6	1.5	1.5
50 Hz	Sealing	W	1.2	1.2	2.3	1.5	1.5
60 Hz	Pick-up	VA	30	30	71	45	45
60 Hz	Sealing	VA	4.4	4.4	9.3	1.5	1.5
60 Hz	Sealing	W	1.4	1.4	2.8	1.5	1.5
50/60 Hz	Pick-up	VA	27 25	27 25	65 59	45 45	45 45
50/60 Hz	Sealing	VA	4.2 3.3	4.2 3.3	9.6 7	1.5 1.5	1.5 1.5
50/60 Hz	Sealing	W	1.4 1.2	1.4 1.2	2.7 2.2	1.5 1.5	1.5 1.5
Duty factor		% DF	100	100	100	100	100
Switching times at 100 % U_c (approximate values)							
Main contacts							
AC operated							
	Closing delay	ms	15...21	15...21	16...22	50	50
	Opening delay	ms	9...18	9...18	8...14	40...	40...
Arcing time		ms	10	10	10	10	10
Electromagnetic compatibility (EMC)							
Emitted interference			according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1
Interference immunity			according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1
Additional technical data			M12	M25	M32	M50	M65



DILMF

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General

Mounting position

AC

				DILMF8	DILMF11	DILMF14	DILMF17	
AC-3 duty	Rated operational current AC-3 open, 50-60 Hz, 3 pole	240 V	I_e	7	9	12	18	
		380/400 V	I_e	7	9	12	18	
	415 V	I_e	7	9	12	18		
	440 V	I_e	7	9	12	18		
	500 V	I_e	5	7	10	18		
	660/690 V	I_e	4	5	7	12		
	Motor rating	220/230 V	P	kW	2.2	2.5	3.5	5
		240V	P	kW	2.2	3	4	5.5
		380/400 V	P	kW	3	4	5.5	7.5
		415 V	P	kW	4	5.5	7	10
		440 V	P	kW	4.5	5.5	7.5	10.5
		500 V	P	kW	3.5	4.5	7	12
		660/690 V	P	kW	3.5	4.5	6.5	11
		1000 V	A		-	-	-	-
AC-4 duty	Rated operational current AC-3 open, 50-60 Hz, 3 pole	220/230 V	I_e	5	6	7	10	
		240 V	I_e	5	6	7	10	
		380/400 V	I_e	5	6	7	10	
		415 V	I_e	5	6	7	10	
		440 V	I_e	5	6	7	10	
		500 V	I_e	4.5	5	6	10	
		660/690 V	I_e	4	4.5	5	8	
		1000 V	A	-	-	-	-	
	Motor rating	220/230 V	P	kW	1	1.5	2	2.5
		240 V	P	kW	1.5	1.6	2.2	3
		380/400 V	P	kW	2.2	2.5	3	4.5
		415 V	P	kW	2.3	2.8	3.4	5
		440 V	P	kW	2.4	3	3.6	5.5
		500 V	P	kW	2.5	2.8	3.5	6
660/690 V	P	kW	2.9	3.6	4.4	6.5		

Current heat loss (3 pole)					
Current heat loss at I_{th}	W	2.4	2.4	2.4	7.3
Current heat loss at I_e to AC-3/400 V	W	0.3	0.6	1	1.9

Magnet systems							
Voltage tolerance	Drop-out voltage AC operated	Pick-up	$\times U_c$	0.8...1.15	0.8...1.15	0.8...1.15	0.8...1.15
	Drop-out voltage AC operated	Drop-out	$\times U_c$	0.2...0.5	0.2...0.5	0.2...0.5	0.2...0.5
Power consumption of the coil in a cold state and $1.0 \times U_c$	Electronic actuation	Pick-up	VA	14	14	14	14
		Sealing	VA	0.7	0.7	0.7	0.7
	Electronic actuation	Sealing	W	0.7	0.7	0.7	0.7
		% DF		100	100	100	100
Operating delays	Closing delay	ms	40	40	40	40	
	Opening delay	ms	45	45	45	45	
suitable according to				SEMI F47	SEMI F47	SEMI F47	SEMI F47

Electromagnetic compatibility (EMC)					
Emitted interference				according to EN 60947-1	
Interference immunity				according to EN 60947-1	
like contactor	DIL	M7	M9	M12	M17

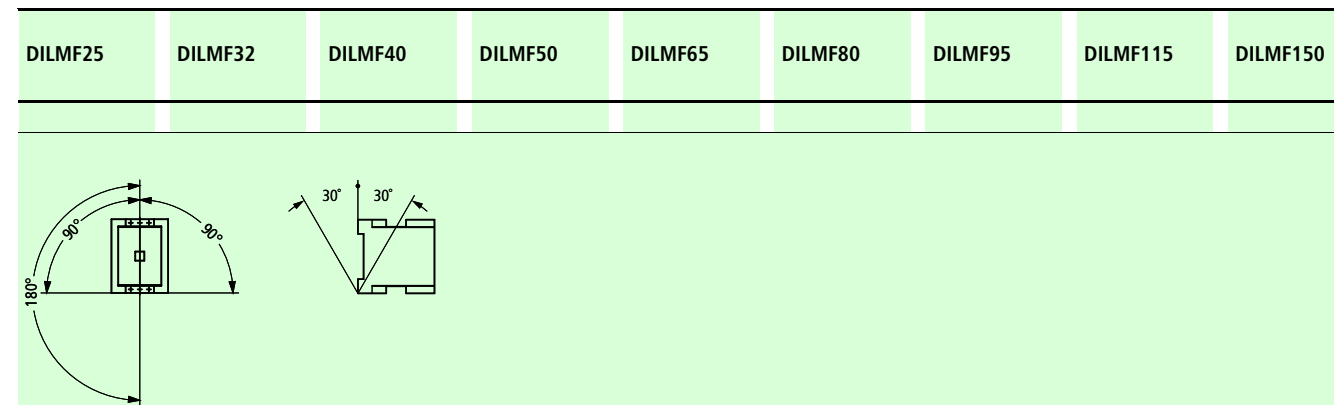
Contactors DILM, DILH



Contactors DILM, DILH

DILMF

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DILMF25	DILMF32	DILMF40	DILMF50	DILMF65	DILMF80	DILMF95	DILMF115	DILMF150
25	32	40	50	65	80	95	115	150
25	32	40	50	65	80	95	115	150
25	32	40	50	65	80	95	115	150
25	32	40	50	65	80	95	115	150
25	32	40	50	65	80	95	115	150
15	18	25	32	37	65	80	93	100
7.5	10	12.5	15.5	20	25	30	37	48
8.5	11	13.5	17	22	27.5	4	40	52
11	15	18.5	22	30	37	45	55	75
14.5	19	24	30	39	48	57	70	91
15.5	20	25	32	41	51	60	75	95
17.5	23	28	36	47	58	70	85	110
14	17	23	30	35	63	75	90	96
13	15	18	21	25	40	50	55	65
13	15	18	21	25	40	50	55	65
13	15	18	21	25	40	50	55	65
13	15	18	21	25	40	50	55	65
13	15	18	21	25	40	50	55	65
10	12	14	17	20	27	37	45	50
-	-	-	-	-	-	-	-	-
3.5	4	5	6	7	12	16	17	20
4	4.5	5.5	6.5	7.5	13	17	19	22
6	7	9	10	12	20	26	28	33
6.5	7.5	9.5	11	13	24	30	33	39
7	8	10	12	14	25	32	35	41
8	9	11	13	16	29	36	40	47
8.5	10	12	14	17	26	35	43	48
9.6	12.1	11.3	19	28.8	14.6	21.8	30.4	46.1
3.8	6.1	7.2	11.3	19	11.5	16.2	23.8	40.5
0.8...1.15	0.8...1.15	0.8...1.15	0.8...1.15	0.8...1.15	0.8...1.15	0.8...1.15	0.8...1.15	0.8...1.15
0.2...0.5	0.2...0.5	0.2...0.5	0.2...0.5	0.2...0.5	0.2...0.5	0.2...0.5	0.2...0.5	0.2...0.5
14	14	45	45	45	75	75	180	180
0.7	0.7	1.5	1.5	1.5	2	2	3.1	3.1
0.7	0.7	1.5	1.5	1.5	2	2	2.1	2.1
100	100	100	100	100	100	100	100	100
40	40	50	50	50	55	55	40	40
45	45	45	45	45	40	40	40	40
SEMI F47	SEMI F47	SEMI F47	SEMI F47	SEMI F47	SEMI F47	SEMI F47	SEMI F47	SEMI F47
according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1	according to EN 60947-1
M25	M32	M40	M50	M65	M80	M95	M115	M150

Contactors DILM, DILH



Contactors DILM, DILH

DILL

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DILL				DILL12	DILL18	DILL20	
General							
Standards				IEC/EN 60947, VDE 0660, UL, CSA			
Lifespan, mechanical	AC operated	Operations	$\times 10^6$	1	1	1	
Operating frequency, mechanical	AC operated	Operations/h		60	60	60	
Maximum operating frequency	electrical (Contactors without overload relay)	Operations/h		60	60	60	
Climatic proofing				Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature	Open		°C	25...60	25...60	25...60	
	Enclosed		°C	25...40	25...40	25...40	
	Storage		°C	-40...80	-40...80	-40...80	
Mounting position							
Mechanical shock resistance (IEC/EN 60068-2-27) Half-sinusoidal shock, 10 ms				6.9	6.9	6.9	
Protection type				IP00	IP00	IP00	
Weight	AC operated		kg	0.42	0.42	0.42	
Main conducting paths							
Rated impulse withstand voltage		U_{imp}	V AC	8000	8000	8000	
Overvoltage category/pollution degree				III/3	III/3	III/3	
Rated insulation voltage		U_i	V AC	690	690	690	
Rated operational voltage		U_e	V AC	690	690	690	
Making capacity			A	238	350	550	
Breaking capacity		380 ... 400 V	A	170	250	320	
Lifespan, electrical		Operations		10000	10000	10000	
Short-circuit protection maximum fuse		400 V	gG/gL 500 V	A	63	100	125
AC							
AC-1 duty							
Conventional thermal current	at 40 °C	I_{th}	A	27	40	45	
	at 60 °C	I_{th}	A	24	35	40	
230 V		I_e	A	12	18	20	
		I_e	A	12	18	20	
400 V		I_e	A	14	21	27	
		I_e	A	14	21	27	
Electric lamps							
Filament bulbs			A	14	21	27	
Mercury blended lamps			A	12	16	23	
Fluorescent lamp load 10 \times 58 W at 230/240 V AC	Conventional reactor starter circuit		A	20	26	35	
	Duo circuit		A	20	26	35	
Electronic upstream devices			A	12	18	20	
High-pressure mercury vapour lamps			A	12	18	20	
Metal-halide lamps			A	12	18	20	
High-pressure sodium lamps			A	12	18	20	
Low-pressure sodium lamps			A	7.5	10	12	
Maximum permissible compensation capacitance			μ F	470	470	470	
Further technical data like DIL contactors				M17	M25	M32	



			DILM7-... – DILM32-...	DILA(C)- XHI...	DILM(C)32- XHI...	DILM(C)150- XHI...	DILM(C)1000-XHI...	
Auxiliary contacts								
Interlocked opposing contacts within an auxiliary contact module (to IEC 60947-5-1 Annex L) ¹⁾			–	Yes	Yes	Yes	Yes	
N/C contact (not late-break contact) suitable as a mirror contact (to IEC/EN 60947-4-1 Annex F)			DILM7 – DILM32	DILM7 – DILM32	DILM7 – DILM32	DILM40 – DILM170	DILM40 – DILM170 DILM185 – DILM1000	
Rated impulse withstand voltage	U_{imp}	V AC	6000	6000	6000	6000	6000	
Overvoltage category/pollution degree			III/3	III/3	III/3	III/3	III/3	
Rated insulation voltage	U_i	V AC	690	690	690	690	690	
Rated operational voltage	U_e	V AC	500	500	500	500	500	
Safe isolation to VDE 0106 Part 101 and Part 101/A1								
between coil and auxiliary contacts			V AC	400	400	440	440	
between the auxiliary contacts			V AC	400	400	440	440	
Rated operational current								
AC-15								
230 V	I_e	A	4	4	4	6	6	
380/415 V	I_e	A	4	4	4	4	4	
500 V	I_e	A	1.5	–	1.5	1.5	1.5	
DC-13 L/R – 15 ms ²⁾								
24 V	I_e	A	10	10	10	10	10	
60 V	I_e	A	6	6	6	6	6	
110 V	I_e	A	3	3	3	3	3	
220 V	I_e	A	1	1	1	1	1	
Conv. thermal current	I_{th}	A	10	16	16	16	10	
Control circuit reliability (at $U_e = 24$ V DC, $U_{min} = 17$ V, $I_{min} = 5.4$ mA)			Failure rate					λ
			<10 ⁻⁸ , < 1 one failure at 100 million operations					
Component lifespan								
at $U_e = 230$ V, AC-15, 3 A	Operations	× 10 ⁶	1.3	1.3	1.3	1.3	1.3	
Short-circuit rating without welding								
max. fuse			A gG/gL	10	10	16	16	

Notes

- ¹⁾ See transparent overlay "Fuses" for time/current characteristics (please inquire)
- ²⁾ not with DIL...-XHIV and DIL...-XHICV



			P1DILEM DILM12-XP1	DILM32-XP1	DILM65-XP1	DILM150-XP1	DILM185-XP1
Parallel link							
Terminal capacities							
Solid		mm ²	1 – 16	16	16	–	–
Flexible with ferrule		mm ²	1 × (0.5 – 25) 2 × (0.5 – 16)	1 × (16 – 35)	1 × (16 – 120)	–	–
Stranded		mm ²	1 × (0.5 – 25) 2 × (0.5 – 16)	1 × (16 – 50)	1 × (16 – 120)	1 × (35 – 300) 2 × (35 – 120)	–
Flat conductor	Number of segments × width × thickness	mm	6 × 9 × 0.8			2 × (11 × 21 × 1)	1 × (6 × 16 × 0.8) 2 × (20 × 32 × 0.5) 2 × (11 × 21 × 1)
Tightening torque		Nm	4	4	14	–	6
Terminal capacity control circuit cables							
Solid		mm ²	–	–	–	–	1 × (0.75 – 4) 2 × (0.75 – 4)
Flexible with ferrule		mm ²	–	–	–	–	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)
Tool							
Pozidriv screwdriver		Size	2	2	–	–	–
Hexagon socket-head spanner	SW	mm	–	–	5	6	5
Conventional thermal current							
3-pole	I_{th}	A	50	100	180	400	700
4-pole	I_{th}	A	60	–	–	–	–



Mini contactor relays, contactor combinations

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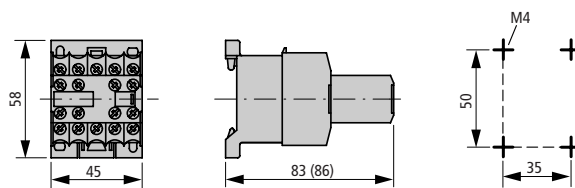
DILER..., DILEM..., DIULEM, SDAINLEM

Mini contactor relays

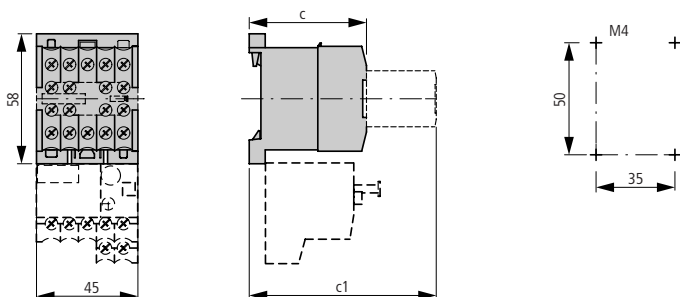
DILER...(-C)
DILER...-G(-C)



DILER...(-C) + ...DILE(-C)
DILER...-G(-C) + ...DILE(-C)

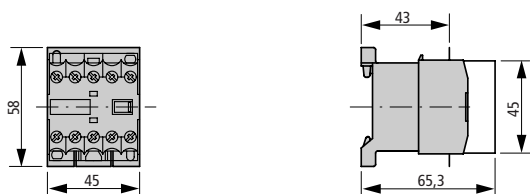


DILER...(-C)
DILEM...-G(-C)



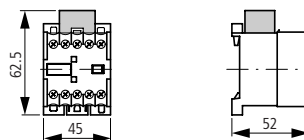
	DILE(E)M(-G)	DILE(E)M(-G)-C
c	52	54
c1	83	86

DILER... + HDILE
DILER...-G + HDILE

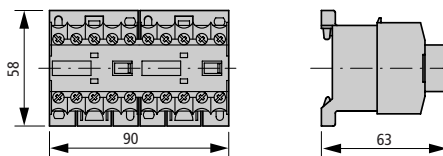


Suppressors

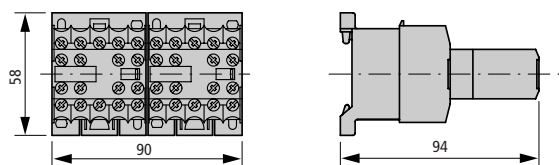
RCDILE...
VGDILE



2DILE... + MVDILE
2DILE...-G + MVDILE

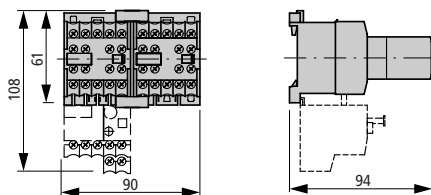


2DILE... + MVDILE + ...DILE
2DILE...-G + MVDILE + ...DILE



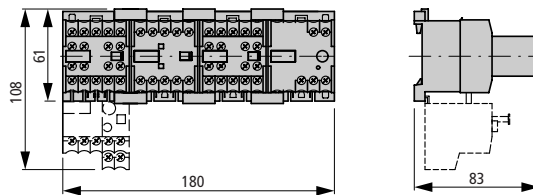
Reversing contactors

DIULEM

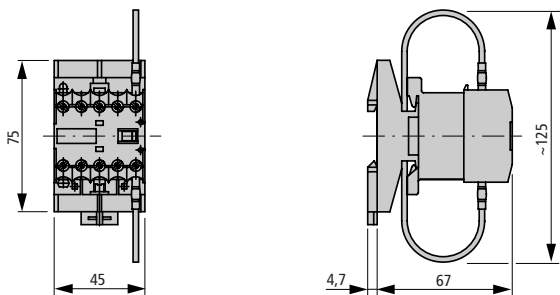


Star-delta starter

SDAINLEM

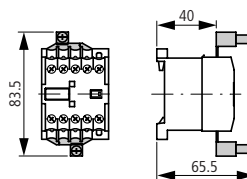


DILER... + TDDILE24



Paralleling link

P1DILEM



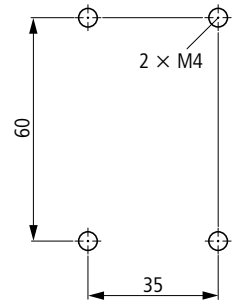
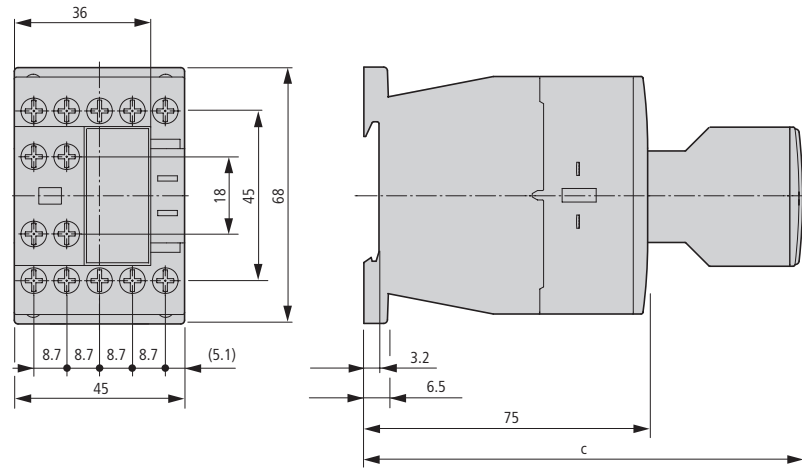
Contactors



Contactor with auxiliary contact module

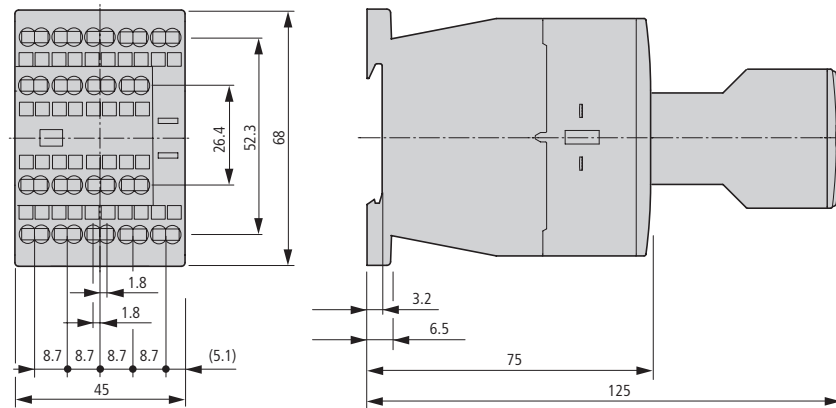
DILM7...DILM15

DILA...

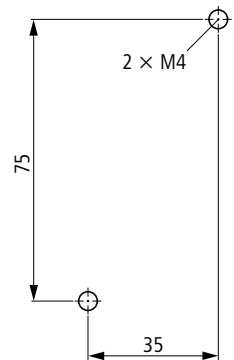
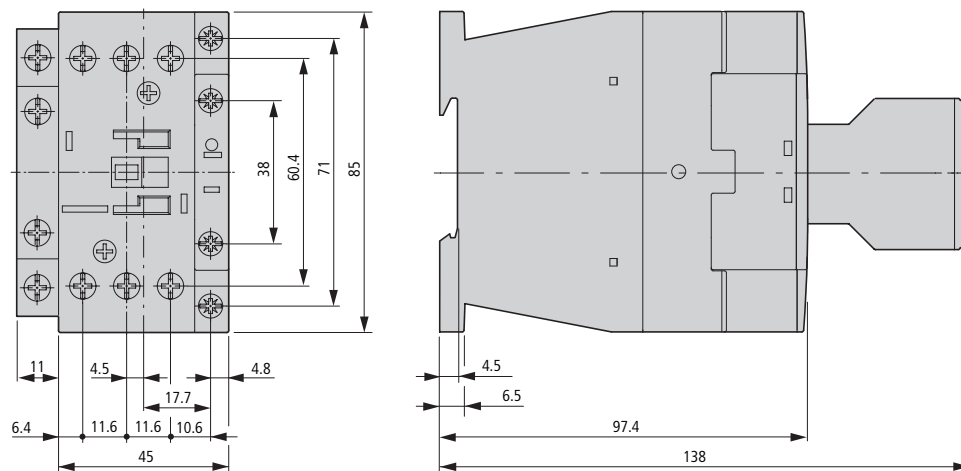


Part no.	c
DILM32-XHI	117
DILA-XHI	117
DILA-XHI...T	125

DILMC7...DILMC12
DILAC...



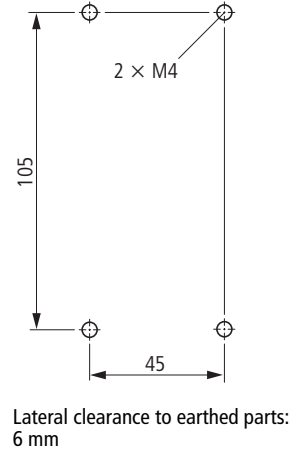
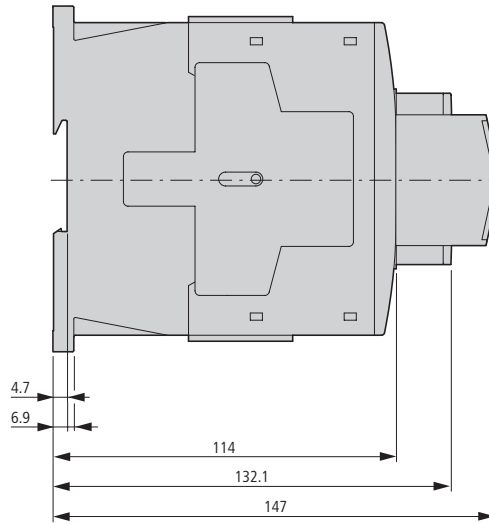
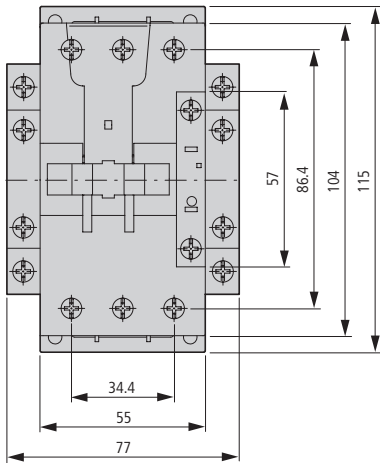
DILM17...DILM32
DILMC17...DILMC32
DILMF8...DILMF32



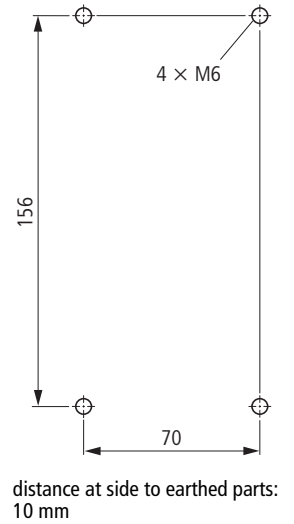
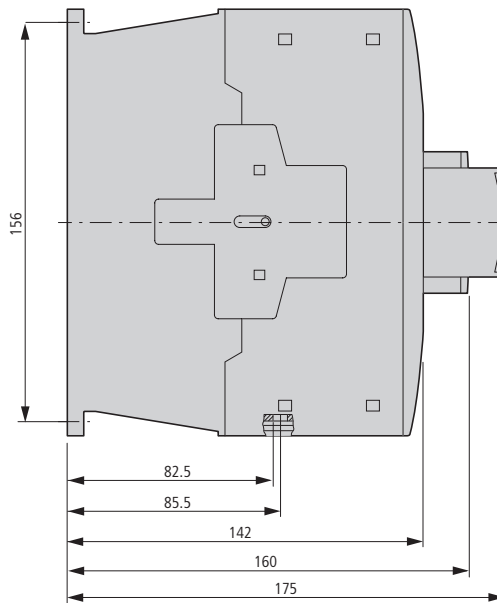
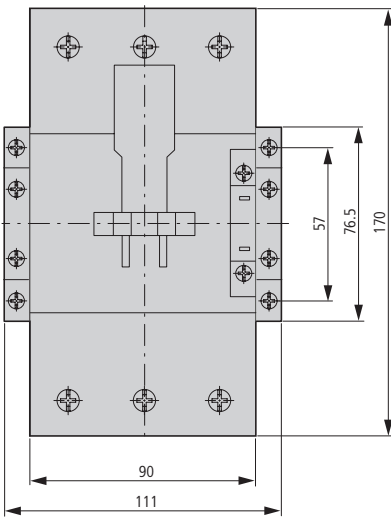
Lateral clearance to earthed parts:
6 mm

Contactors

DILM40...DILM72
DILMC40...DILMC65
DILMF40...DILMF65

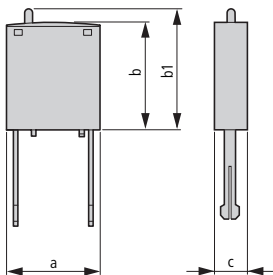


DILM80...DILM170
DILMC80...DILMC150
DILMF80...DILMF150



Suppressors

DILM...XSP...



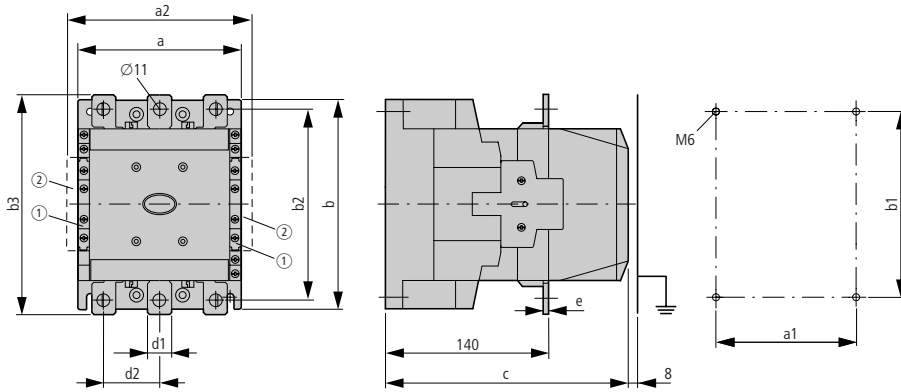
Part no.	a	b	b1	c
DILM12-XSP...	25	28	≈32	9
DILM32-XSP...	25	28	≈32	9
DILM95-XSP...	25	28	≈32	9



Complete units

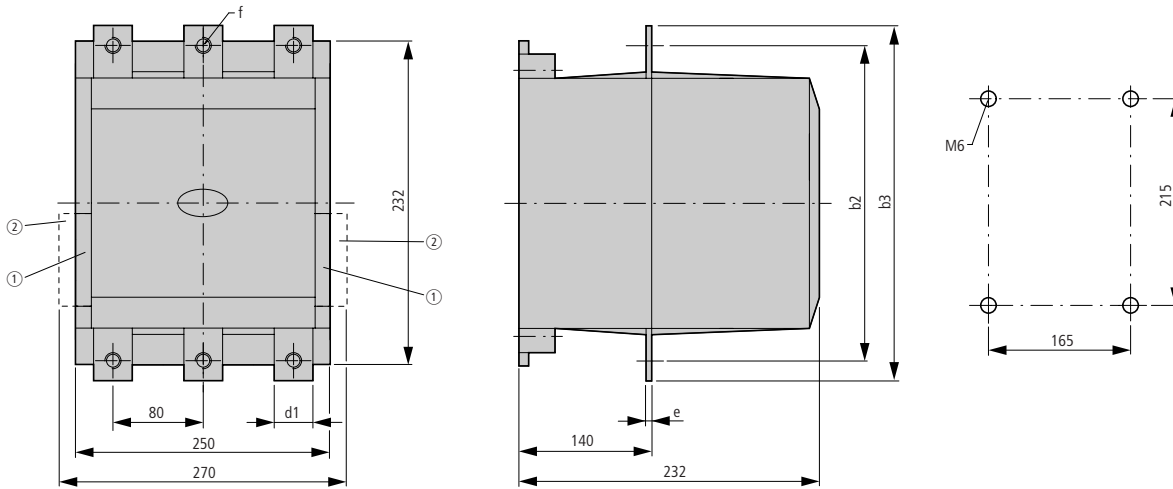
DILM185...DILM500
DILMC185-S...DILMC500-S
DILM185-S...DILM500-S

① DILM1000-XHI...-SI
② DILM1000-XHI11-SA



Part no.	a	a1	a2	b	b1	b2	b3	d1	d2	e	c
DILM185	140	120	160	180	160	164	189	20	48	5	208
DILM225	140	120	160	180	160	164	189	20	48	5	208
DILM250	140	120	160	180	160	164	189	25	48	5	208
DILM300	160	130	180	200	180	184	209	25	48	6	216
DILM400	160	130	180	200	180	184	209	25	48	6	216
DILM500	160	130	180	200	180	189	219	38	57	6	216

DILM580...DILM1000

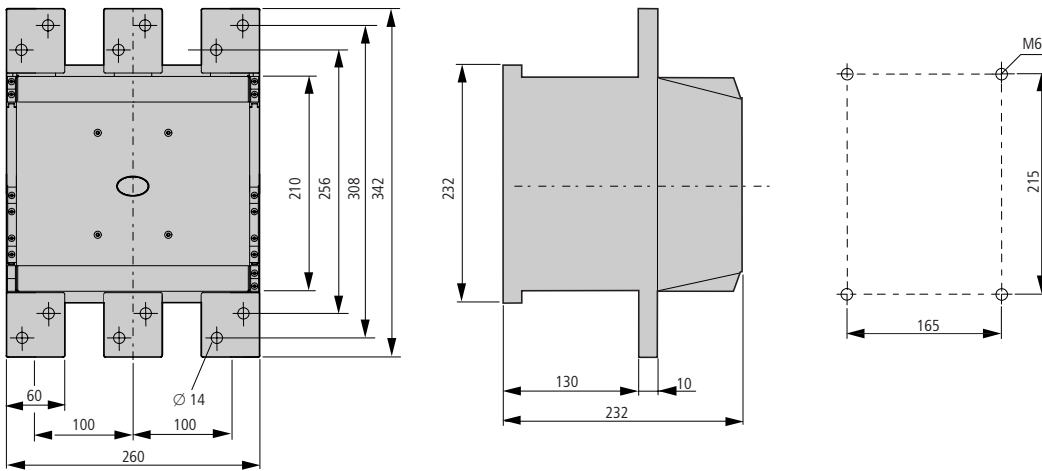


① DILM1000-XHI...-SI
② DILM1000-XHI11-SA

Part no.	b2	b3	d1	e	f
DILM580	256	286	35	6	11
DILM650	256	286	35	6	11
DILM750	256	296	45	6	13.5
DILM820	256	296	45	6	13.5
DILM1000	256	296	45	10	13.5

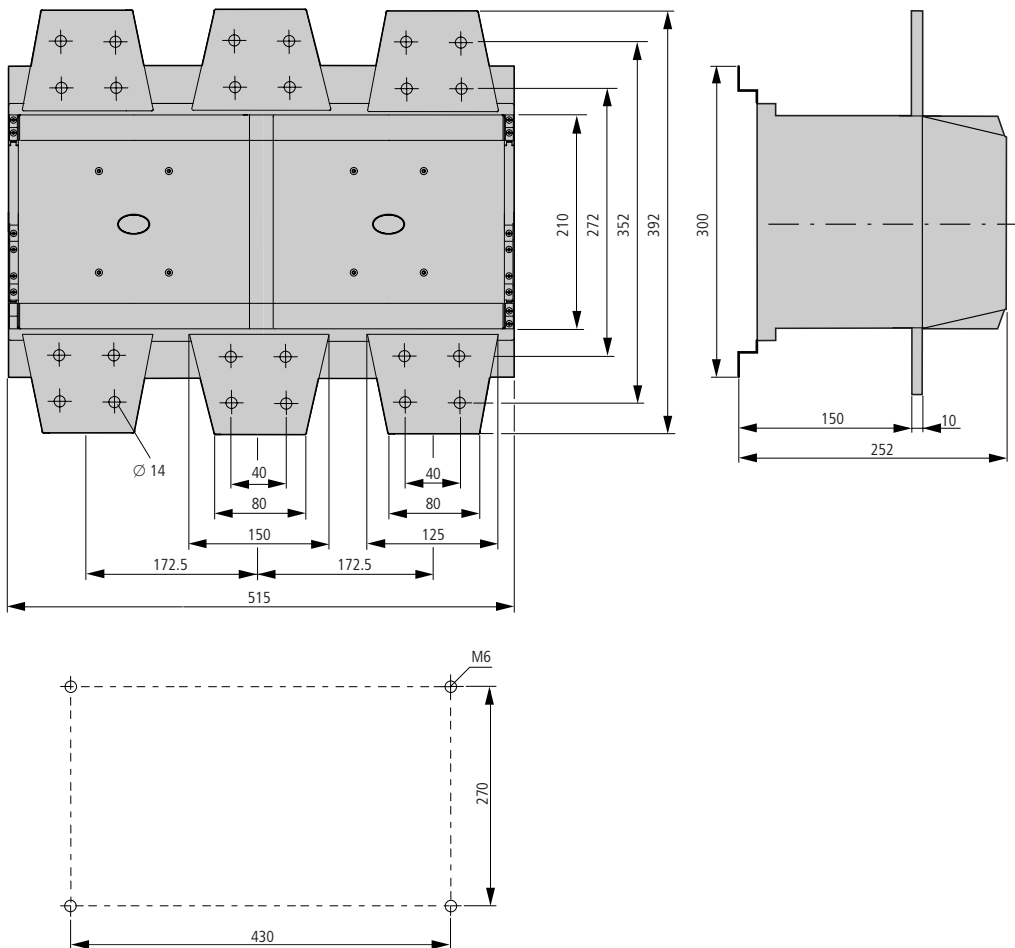
AC 1 contactors greater than 1000 A

DILH1400



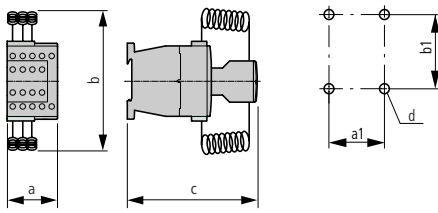
DILM1600

DILH2000



Contactors for capacitors

DILK...

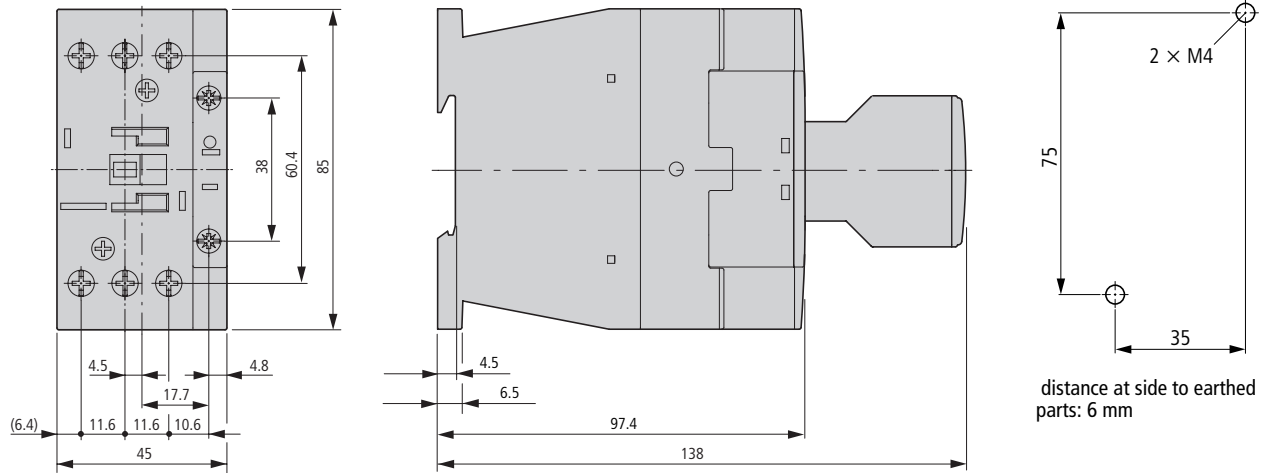


Part no.	a	b	c	a1	b1	d
DILK12	45	120	118	35	60	2 × M4
DILK20	45	135	138	35	75	2 × M4
DILK25	45	135	138	35	75	2 × M4
DILK33	55	190	147	45	105	2 × M4
DILK50	55	190	147	45	105	2 × M4

Lighting contactors DILL

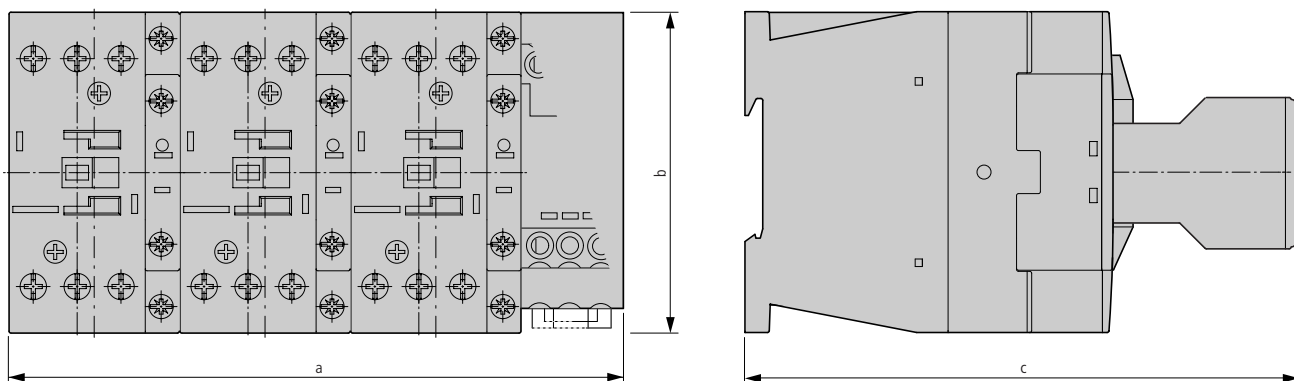
DILL...

DILL12...20



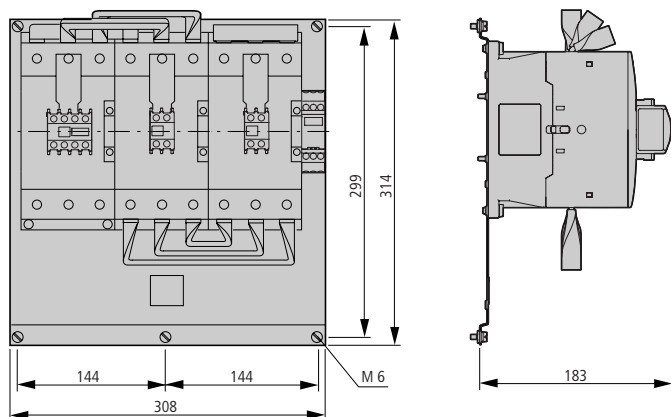
Star-delta starter

SDAINLM12...SDAINLM115



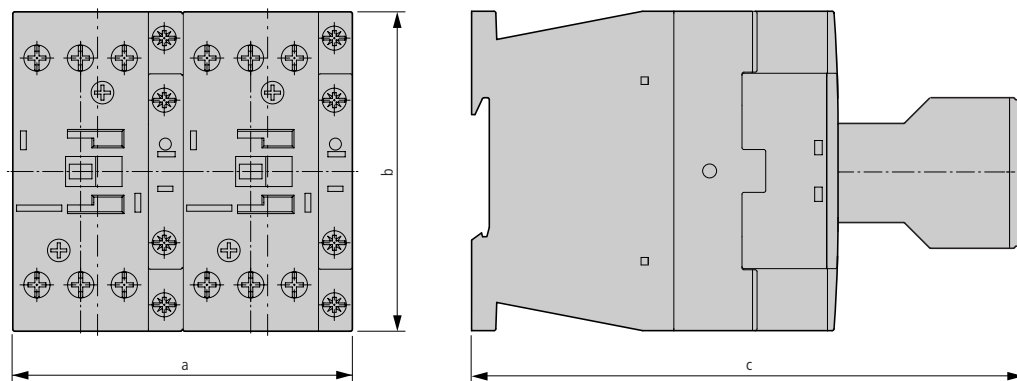
Part no.	a	b	c
SDAINLM12...22	158	68	117
SDAINLM30...55	158	85	138
SDAINLM70...115	188	115	147

SDAINLM140...SDAINLM260



Reversing contactors

DIULM7...DIULM65

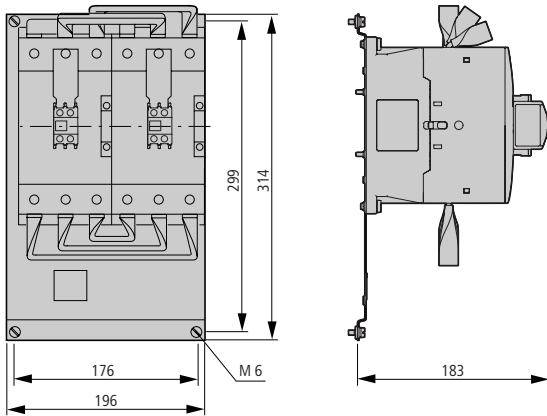


Part No.	a	b	c
DIULM7/21...12/21	90	68	117
DIULM17/21...32/21	90	85	138
DIULM40/11...65/11	110	115	147



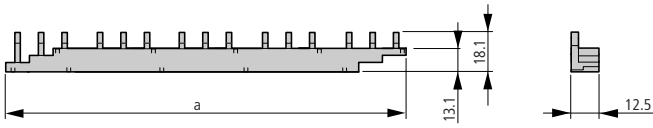
Reversing contactors

DIULM80...DIULM150



Three-phase commoning links

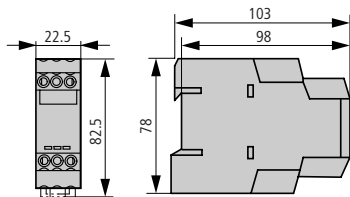
DILM...-XDSB...



Part no.	a
DILM12-XDSB0/3	112
DILM12-XDSB0/4	157
DILM12-XDSB0/5	202

Amplifier module

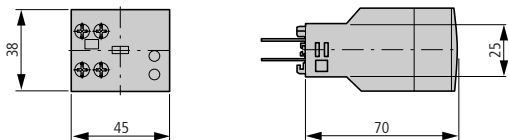
ETS4-VS3



Electronic timer modules

Electronic timer modules

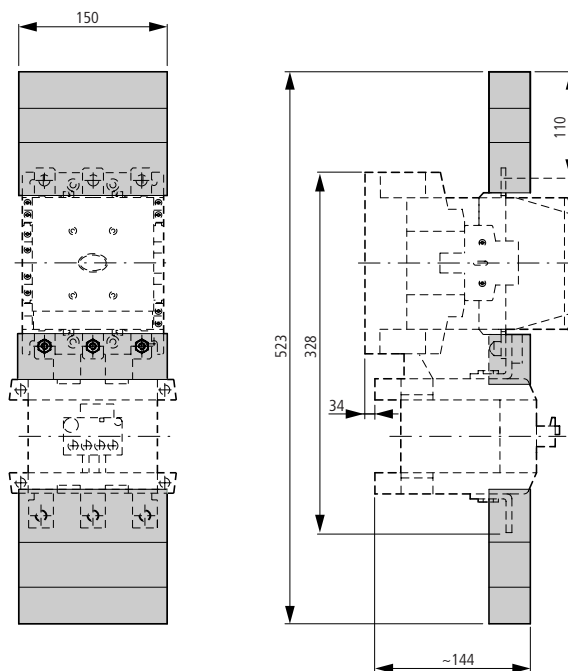
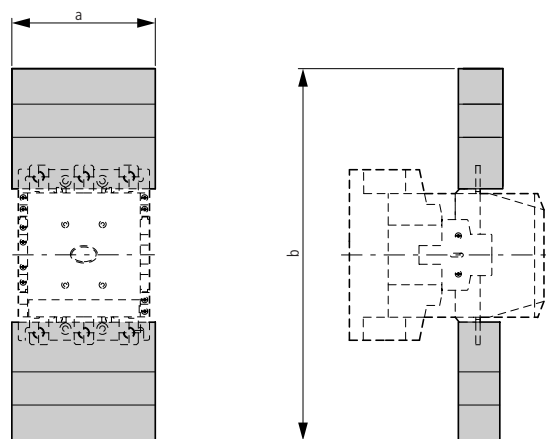
DILM...XTE



Contactors with terminal shrouds

DILM185...DILM1000 + DILM...-XHB

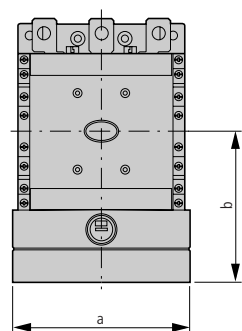
DILM185...250 + Z5-.../FF250



for part no.	a	b
DILM185...250	150	384
DILM300...400	150	404
DILM500	174	426
DILM580...1000	236	506

Contactor with star-point bridge and terminal shroud

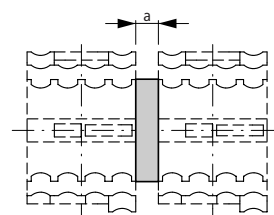
DILM...XS1



for part no.	a	b
DILM185...250	150	127
DILM300...400	150	137
DILM500	176	146

Mechanical interlock

DILM500-XMV



for part no.	a
DILM185...500	15

DILM820-XMV

