MOELLER

Start with Moeller

contactors
control relays
motor protection
SYST-M enclosed starters



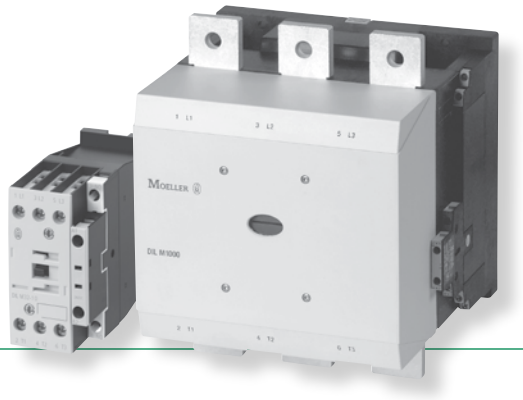


contactors

MOELLER

series DIL M contactors

reliable switching for applications up to 1000A



Moeller's DIL M contactor line packs all the control you need into a smart, compact design. Our modern IEC contactors can handle up to 1000A in virtually any application worldwide. Their compliance with IEC standards ensures the most accurate match to your motor size – you'll never buy more control than you need.

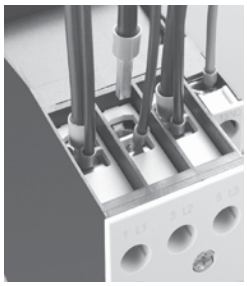
- > 24 contactors
- > 7 frame sizes
- > Switches motors up to 1000HP
- > Same compact dimensions for AC and DC units

For a broad range of applications

Twenty-four contactors in seven frame sizes cover all applications from fractional to 1000HP (@ 575V). This extensive range allows you to select exactly the right size for your application, whether it be resistive AC-1 environments; common starting and stopping AC-3 applications; or even extreme AC-4 situations involving inching and plugging of motors.

Easy installation by design

The DIL M contactor series features dual power terminals on units up to 400A. The clamping chambers are cleverly designed to apply sufficient holding pressure to cables of varying sizes. Conventional designs are often limited by the size of the largest cable in the chamber.



The line also features ingenious mechanical interlocks (rocker and ball style) that allow fast and easy assembly of contactor combinations without requiring additional space. Many contactors can be interlocked both horizontally and vertically.

Accessories extend flexibility

Several ranges within the DIL M series share common auxiliary contacts and other components. This lowers inventories even when accommodating a complete range of control solutions. Voltage indicators, reversing kits, and many other optional accessories are also available.

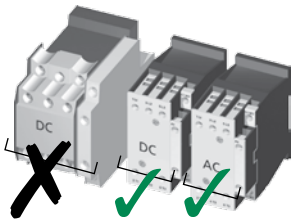
Safety

All DIL M series contactors provide isolation and protection from direct hand contact. Even the largest contactors accept terminal shields.

DIL M Low Range

Moeller's DIL M contactor series includes a completely NEW offering in the lower 7 to 150A range. Consisting of four frame sizes, this range is the newest and most modern of any control manufacturer!

Compact design for BOTH currents



Conventional contactors designed for DC control applications can be up to 30% larger than their AC counterparts. Not anymore! Unique to Moeller's DIL M contactors, AC and DC units are the same frame size throughout the entire range. The reduced size means smaller DC panels than ever before. This also means you can now design one panel for either AC or DC control, without having to plan for a larger DC contactor.

Easy to assemble

Coil terminals are located on the front of the new contactors to simplify wiring. Both two and four-pole auxiliary contacts snap on without tools. Units 40A and above accept both side and top mount auxiliaries for increased flexibility. In addition, devices up to 32A include built-in auxiliary contacts for increased economy with no additional space requirement.

Contacts designed for safety

Auxiliary contact blocks for new DIL M contactors have positively guided contacts for added safety in control circuits. Positively guided auxiliary contacts insure that, throughout the life of the contactor, NO and NC contacts will never close simultaneously…even if a contact welds. In addition, DIL M contactors to 65A have "mirror" contacts, which ensure that all auxiliary contacts (whether built-in or add-on) function correctly in relation to the power contacts.

Special advantages of going DC

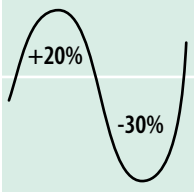
In addition to sharing the same frame size as AC contactors, DC units of 17A and above also feature electronic drives that dramatically reduce pick-up and sealing consumption. These drives produce several benefits:

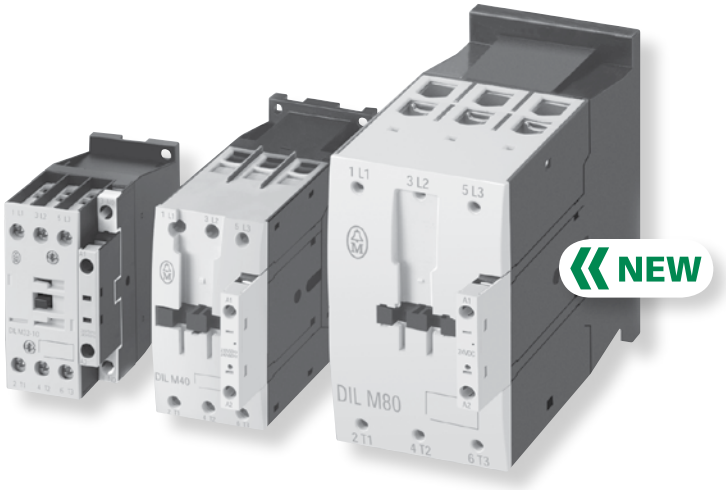
- less heat is generated, eliminating the need for a fan
- smaller control transformers are required
- contactors up to DIL M32 can be directly actuated from PLCs, eliminating the need for a coupling relay

These benefits lower your cost by consuming less power, eliminating additional components, and permitting higher packing density in the panel.

DC units to 150A also carry a built-in high-speed suppressor circuit, eliminating the need for purchasing and installing a separate external suppressor. Again, lower total cost and smaller panel space result.

For additional safety and convenience, Moeller's DIL M DC contactors feature an expanded voltage tolerance, beyond that specified by IEC/EN 60947. This accommodates a range of -30% to +20% for DIL M contactors 17A and above. It is one of the largest voltage tolerance ranges of any control manufacturer.



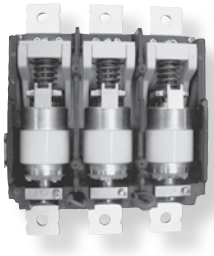


DIL M High Range

For heavy-duty applications, Moeller's contactor line continues with the DIL M185 to DIL M1000. This range includes 11 contactors in three frame sizes. All applications and worldwide voltages, both AC and DC, can be accommodated with only four coils.

On-board electronics for efficient operation

All DIL M185 to 1000 contactors utilize electronically-controlled magnet systems. This feature provides flexible actuation, and contributes to lower panel temperature, smaller control transformer requirements and greater control voltage tolerance. Direct actuation from a PLC or other low level source is easily accomplished. In addition, a built-in suppressor circuit for control protection is standard. All of this adds up to fewer external components and smaller panel space.



Vacuum contactors designed for small size, long life

DIL M580 to DIL M1000 are vacuum contactors. This feature reduces contact damage caused by electrical arcing, leading to longer life of the contactor. It also permits tighter packing density in the panel because there are no open arcs or escaping gases that would typically require additional space for dissipation.

DIL EM Miniature Contactors

Moeller also offers a miniature contactor, the DIL EM. Designed for small loads, it is available in units up to 20A, and provides reliable performance for motors up to 5HP (@575V). AC and DC units are available.

The DIL EM miniature contactor features a large ambient temperature range, and its low power consumption permits direct actuation from a PLC. The DC version of the DIL EM also includes an integrated suppressor to protect from voltage peaks that may occur when the coil is disconnected. Top-mount auxiliary contacts are available in both 2- and 4-pole configurations.

Standards and Approvals

Moeller's DIL M and DIL EM contactors carry UL, CSA, IEC/EN 60947 and VDE 0660 approvals. They are manufactured to ISO 9001 quality standards.

Moeller's catalog numbering system for contactors and other devices follows a logical system. Device attributes can be determined by the following nomenclature.

Dashes (–) are used to separate device attributes and should always be included when ordering.

DIL M 7 – 10 (240V60Hz)

Product Line

DIL	*Non-reversing contactors*
DIUL	*Reversing contactors*

Contactor Type

M	*Contactors*
EM	*Miniature contactors*
MP	*4-pole contactors*
K	*Capacitor switching contactors*
M-*N	*NEMA rated contactors*

Contactor Size

7 ↓ **1000** — *Moeller contactors are available in 24 sizes ranging from 7 to 1000 A*

Coil Voltage

(values shown are for illustration purposes only - more voltages available)

(240V60Hz)	*Standard electromechanical AC coil of 240V / 60Hz*
(24VDC)	*Standard electromechanical DC coil of 24V*
(RA250)	*Electronic AC coil of 110-250V 50/60Hz*
(RDC24)	*Electronic DC coil of 24V*

Auxiliary Contacts

(these characters only appear when Auxiliary Contacts are integrated into the base contactor)

10	*1 Normally Open - No Normally Closed*
01	*No Normally Open - 1 Normally Open*
22	*2 Normally Open - 2 Normally Closed*

This page for reference only.
Please turn to the appropriate pages to determine
the exact device and/or accessories required for your application.

Frame Size	Moeller Contactor	Maximum Horsepower (UL/CSA)						
		Single Phase		Three Phase				
		115 Volt	230 Volt	200 Volt	230 Volt	460 Volt	575 Volt	
	DIL M7	¼	1	1½	2	3	5	
		⅓	1	1½	1½	2	2	NEMA Size 00
	DIL M9	½	1½	3	3	5	7½	
		1	2	3	3	5	5	NEMA Size 0
	DIL M12	1	2	3	3	10	10	
	DIL M17 ❶	2	3	7½	7½	10	15	
		2	3	7½	7½	10	10	NEMA Size 1
	DIL M25	2	5	7½	10	15	20	
	DIL M32	3	5	10	10	20	25	
		3	7½	10	15	25	25	NEMA Size 2
	DIL M40	3	7½	10	15	30	40	
	DIL M50	3	10	15	20	40	50	
	DIL M65	5	15	20	25	50	60	
		7½	15	25	30	50	50	NEMA Size 3
	DIL M80	7½	15	25	30	60	75	
	DIL M95	7½	15	25	40	75	100	
		–	–	40	50	100	100	NEMA Size 4
	DIL M115	10	25	40	50	100	100	
	DIL M150	15	30	40	60	125	125	
	DIL M185	–	–	50	60	125	150	
	DIL M225	–	–	60	75	150	200	
		–	–	75	100	200	200	NEMA Size 5
	DIL M250	–	–	75	100	200	250	
	DIL M300	–	–	100	125	250	300	
	DIL M400	–	–	125	150	300	400	
		–	–	150	200	400	400	NEMA Size 6
	DIL M500	–	–	150	200	400	500	
	DIL M580	–	–	200	200	400	600	
	DIL M650	–	–	200	250	500	600	
		–	–	–	300	600	600	NEMA Size 7
	DIL M750	–	–	250	300	600	700	
	DIL M820	–	–	290	350	700	860	
		–	–	–	450	900	900	NEMA Size 8
	DIL M1000	–	–	–	400	800	1000	

Compare Moeller's 24 contactor sizes to just 10 equivalent NEMA sizes

❶ DILM17 does not meet with NEMA size 1 switching duty.

The full-load current values listed in the table below are for motors running at usual speeds, with normal torque characteristics at 1.15 service factor. This table is a guide only. The actual full load motor amps for your motor may be different than the average values listed here. Always use the actual motor current listed on the motor nameplate when purchasing motor control and protection products.

Motor Rating (HP)	AC Induction Motor – Full Load Current (A)						
	Single Phase			Three Phase			
	115 V	200 V	230 V	200 V	230 V	460 V	575 V
1/6	4.4	2.5	2.2	–	–	–	–
1/4	5.8	3.3	2.9	–	–	–	–
1/3	7.2	4.1	3.6	–	–	–	–
1/2	9.8	5.6	4.9	2.3	2.0	1.0	0.8
3/4	13.8	7.9	6.9	3.2	2.8	1.4	1.1
1	16	9.2	8	4.1	3.6	1.8	1.4
1-1/2	20	11.5	10	6.0	5.2	2.6	2.1
2	24	13.8	12	7.8	6.8	3.4	2.7
3	34	19.6	17	11.0	9.6	4.8	3.9
5	56	32.2	28	17.5	15.2	7.6	6.1
7-1/2	80	46	40	25.3	22	11	9
10	100	57.5	50	32.2	28	14	11
15	–	–	–	48.3	42	21	17
20	–	–	–	62.1	54	27	22
25	–	–	–	78.2	68	34	27
30	–	–	–	92.0	80	40	32
40	–	–	–	119.6	104	52	41
50	–	–	–	149.5	130	65	52
60	–	–	–	177.1	154	77	62
75	–	–	–	220.8	192	96	77
100	–	–	–	285.2	248	124	99
125	–	–	–	358.8	312	156	125
150	–	–	–	414	360	180	144
200	–	–	–	552	480	240	192
300	–	–	–	825	720	360	288
350	–	–	–	963	840	420	336
400	–	–	–	1100	960	480	384
450	–	–	–	1238	1080	540	432
500	–	–	–	1375	1200	600	480
600	–	–	–	1650	1440	720	576
700	–	–	–	1925	1680	840	672
800	–	–	–	2200	1920	960	768
900	–	–	–	2475	2160	1080	864
1000	–	–	–	2750	2400	1200	960

NOTE: This chart was developed from Table 430-148 & 430-150 of the NEC, Table 52.2 of UL standard 508 and from the Canadian Electrical Code (CEC), Part 1, table 44 and 45.

- Four compact frame sizes cover applications to 150A
- Space-saving design reduces panel space and cost
- Dual box terminals make wiring safer and easier for cables with uneven cross-sections
- New combination plug-in technology provides tool-less connection with other starting components up to DIL M12

Three-pole Contactors with AC Coil *(to 150 Amps)* ❶❷

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
20	18	1/4	3/4	1	1½	2	3	5	1	0	DILM7-10◆ ❸	88
									0	1	DILM7-01◆ ❸	88
20	18	1/2	1	1½	3	3	5	7½	1	0	DILM9-10◆ ❸	100
									0	1	DILM9-01◆ ❸	100
20	18	1	2	2	3	3	10	10	1	0	DILM12-10◆ ❸	124
									0	1	DILM12-01◆ ❸	124
40	36	2	2	3	7½	7½	10	15	1	0	DILM17-10◆	130
									0	1	DILM17-01◆	130
40	36	2	3	5	7½	10	15	20	1	0	DILM25-10◆	175
									0	1	DILM25-01◆	175
40	36	3	5	5	10	10	20	25	1	0	DILM32-10◆	220
									0	1	DILM32-01◆	220
55	49	3	5	7½	10	15	30	40	0	0	DILM40◆ ❹	250
65	58	3	7½	10	15	20	40	50	0	0	DILM50◆ ❹	290
80	72	5	10	15	20	25	50	60	0	0	DILM65◆ ❹	390
125	112	7½	15	15	25	30	60	75	0	0	DILM80◆ ❹	480
125	112	7½	15	15	25	40	75	100	0	0	DILM95◆ ❹	595
155	140	10	25	25	40	50	100	100	0	0	DILM115◆ ❹	820
155	140	15	25	30	40	60	125	125	0	0	DILM150◆ ❹	1010

AC Coil Codes - DILM7 – 95 ❺

Complete catalog number (◆) with…	Voltage Range	
	50 Hz	60Hz
(24V60Hz)	–	24V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(220V60Hz)	190V	220V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

AC Coil Codes - DILM115 – 150

Complete catalog number (◆) with…	Voltage Range
	50/60 Hz
(RAC24)	24V
(RAC120)	120V
(RAC240)	190V – 240V
(RAC500)	480V – 500V

Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

3 See pages A17 - A30 for auxiliaries & accessories

❶ Positively guided contacts within all auxiliary contact modules (including any internal auxiliaries). Mirror contacts on all contactors (in relation to internal or external auxiliaries).

❷ Contact elements of the contactor to EN 50012.

❸ Coils not replaceable.

❹ May combine side mount and front mount auxiliary contact modules. For maximum number of auxiliary contacts see page 22.

❺ Other coil voltages between 24 and 600V AC available by special order. Contact your Moeller representative for information.

- Same compact size as Moeller's AC contactors, saving panel space
- Electronically controlled magnet system (from DIL M17) provides less heat dissipation and smaller control transformers
- Direct actuation from a PLC without coupling relays (DIL M17 to 32)
- Integrated surge suppressor

Three-pole Contactors with DC Coil *(to 150 Amps)* ❶❷❸

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
20	18	1/4	3/4	1	1½	2	3	5	1	0	DILM7-10◆ ❹	110
									0	1	DILM7-01◆ ❹	110
20	18	1/2	1	1½	3	3	5	7½	1	0	DILM9-10◆ ❹	120
									0	1	DILM9-01◆ ❹	120
20	18	1	2	2	3	3	10	10	1	0	DILM12-10◆ ❹	158
									0	1	DILM12-01◆ ❹	158
40	36	2	2	3	7½	7½	10	15	1	0	DILM17-10◆	185
									0	1	DILM17-01◆	185
40	36	2	3	5	7½	10	15	20	1	0	DILM25-10◆	225
									0	1	DILM25-01◆	225
40	36	3	5	5	10	10	20	25	1	0	DILM32-10◆	310
									0	1	DILM32-01◆	310
55	49	3	5	7½	10	15	30	40	0	0	DILM40◆ ❺	325
65	58	3	7½	10	15	20	40	50	0	0	DILM50◆ ❺	460
80	72	5	10	15	20	25	50	60	0	0	DILM65◆ ❺	585
125	112	7½	15	15	25	30	60	75	0	0	DILM80◆ ❺	650
125	112	7½	15	15	25	40	75	100	0	0	DILM95◆ ❺	775
155	140	10	25	25	40	50	100	100	0	0	DILM115◆ ❺	925
155	140	15	25	30	40	60	125	125	0	0	DILM150◆ ❺	1196

Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

3 See pages A17 - A30 for auxiliaries & accessories

DC Coil Codes - DILM7 – 12 ❻

Complete catalog number (◆) with…	Voltage
(24VDC)	24V
(48VDC)	48V

DC Coil Codes - DILM17 – 150 ❻

Complete catalog number (◆) with…	Voltage Range
(RDC24)	24 – 27V DC
(RDC60)	48 – 60V DC
(RDC130)	110 – 130V DC
(RDC240)	200 – 240V DC

❶ Positively guided contacts within all auxiliary contact modules (including any internal auxiliaries). Mirror contacts on all contactors (in relation to internal or external auxiliaries).

❷ Contact elements of the contactor to EN 50012.

❸ DC-operated contactors have an integrated surge suppressor.

❹ Coils not replaceable.

❺ May combine side mount and front mount auxiliary contact modules. For maximum number of auxiliary contacts see page 22.

❻ Other coil voltages between 12 and 250V DC available by special order. Contact your Moeller representative for information.

- Heavy duty contactors for demanding applications
- Electronically controlled magnet systems dramatically reduce pick-up and seal-in, while increasing control voltage tolerance
- Direct connection to PLCs and low level input devices
- Large HP devices (from DIL M580) are vacuum contactors, which increase electrical lifespan and decrease space requirements
- Built-in suppressor circuit for control protection

Three-pole Contactors with AC or DC Electronic Coil *(185 to 1000 Amps)* ❶

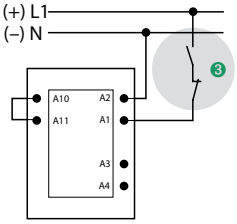
General Use (A)		Maximum UL / CSA Horsepower Ratings				Auxiliary Contacts		Catalog Number	Price
		Three Phase							
Open	Enclosed	200 V	230 V	460 V	575 V	NO	NC		
225	202	50	60	125	150	2	2	DILM185/22◆	1800
250	225	60	75	150	200	2	2	DILM225/22◆	2200
350	315	75	100	200	250	2	2	DILM250/22◆	2800
350	315	100	125	250	300	2	2	DILM300/22◆	3100
450	405	100	150	300	400	2	2	DILM400/22◆	3900
550	495	150	200	400	500	2	2	DILM500/22◆	5800
630	567	200	200	400	600	2	2	DILM580/22◆ ❷	7400
700	630	200	250	500	600	2	2	DILM650/22◆ ❷	7900
800	720	250	300	600	700	2	2	DILM750/22◆ ❷	9100
850	765	290	350	700	860	2	2	DILM820/22◆ ❷	10100
1000	900	–	400	800	1000	2	2	DILM1000/22◆ ❷	11700

AC & DC Coil Codes ❹

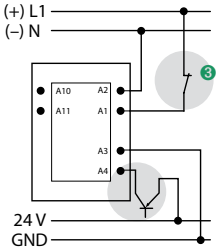
Complete catalog number (◆) with…	Voltage
(RDC48)	24 – 48V DC (only for DILM185 – 500)
(RA110)	48 – 110V AC 48 – 110V DC
(RA250)	110 – 250V AC 110 – 250V DC
(RAC500)	250 – 500V AC

Electronic Coil - Application Notes

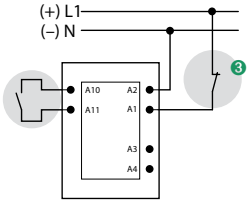
Conventional coil connection
A1/A2 are applied to voltage in the usual manner.



Direct from the PLC
A 24 V output from the PLC can be connected directly to connections A3/A4.



From low-consumption command devices
Command devices that can only be subject to minimal loads such as circuit board relays, control circuit devices or position switches can be connected directly to A10/A11.



Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

3 See pages A17 - A30 for auxiliaries & accessories

4 See page A29 for terminal lug selections

❶ Do not reverse contactors directly.
❷ When operating with frequency inverters or when performing a high-voltage test, the suppressor on the load side must be removed.
❸ Standstill in an emergency (emergency stop).
❹ Wide range electronic coils; all AC coils operate between 40Hz and 60Hz.

- Miniature, economical contactors for small motors and loads
- Approved for worldwide use
- High degree of climatic approvals and large ambient temperature range
- AC and DC operated versions available
- DC model includes integrated diode/resistor surge suppressor

Miniature Three-pole Contactors with AC Coil ❶

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
15	13.5	1/2	1	1½	2	3	5	5	1	0	DILEM-10◆	72
15	13.5	1/2	1	1½	2	3	5	5	0	1	DILEM-01◆	72

Miniature Three-pole Contactors with DC Coil ❶❷

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
15	13.5	1/2	1	1½	2	3	5	5	1	0	DILEM-10-G◆	90
15	13.5	1/2	1	1½	2	3	5	5	0	1	DILEM-01-G◆	90

AC Coil Codes ❶

Complete catalog number (◆) with…	Voltage Range	
	50 Hz	60Hz
(24V60Hz)	–	24V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(220V60Hz)	190V	220V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

DC Coil Codes ❶❷

Complete catalog number (◆) with…	Voltage
(12VDC)	12V
(24VDC)	24V
(48VDC)	48V
(60VDC)	60V
(110VDC)	110V
(220VDC)	220V

Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

3 See pages A17 - A30 for auxiliaries & accessories

❶ Coil not replaceable.
❷ Includes integrated resistor/diode surge suppressor.

- Miniature, economical four-pole contactors
- Approved for worldwide use
- High degree of climatic approvals and large ambient temperature range
- AC and DC versions available
- DC model includes integrated diode/resistor surge suppressor

Miniature Four-pole Contactors with AC Coil ❶

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
15	13.5	1/2	1	1½	2	3	5	5	0	0	**DILEM4◆**	**72**

Miniature Four-pole Contactors with DC Coil ❶❷

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
15	13.5	1/2	1	1½	2	3	5	5	0	0	**DILEM4-G◆**	**90**

AC Coil Codes ❶

Complete catalog number (◆) with…	Voltage Range	
	50 Hz	60Hz
(24V60Hz)	–	24V
(120V60Hz)	110V	120V
(220V60Hz)	190V	220V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V

DC Coil Codes ❶❷

Complete catalog number (◆) with…	Voltage
(24VDC)	24V
(48VDC)	48V
(110VDC)	110V

Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

3 See pages A17 - A30 for auxiliaries & accessories

❶ Coil not replaceable.
❷ Includes integrated resistor/diode surge suppressor.

- Space-saving four-pole design reduces panel space and cost
- Dual box terminals make wiring safer and easier for cables with uneven cross-sections
- DC operated contactors have an integrated surge suppressor

Four-pole Contactors with AC Coil ❶

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
20	18	1/2	1	1½	3	3	5	7½	0	0	DILMP20◆	130

Four-pole Contactors with DC Coil ❶❷

General Use (A)		Maximum UL / CSA Horsepower Ratings							Auxiliary Contacts		Catalog Number	Price
		Single Phase			Three Phase							
Open	Enclosed	115 V	200 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
20	18	1/2	1	1½	3	3	5	7½	0	0	DILMP20◆	160

AC Coil Codes ❶

Complete catalog number (◆) with…	Voltage Range	
	50 Hz	60Hz
(24V60Hz)	–	24V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(220V60Hz)	190V	220V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

DC Coil Codes ❶❷

Complete catalog number (◆) with…	Voltage
(24VDC)	24V
(48VDC)	48V

Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

3 See pages A17 - A30 for auxiliaries & accessories

❶ Coil not replaceable.
❷ DC contactors include integrated varistor surge suppressor.

- Space-saving design reduces panel space and cost
- Units are pre-assembled with electrical and mechanical interlocks
- Ingenious mechanical interlocks add no additional space
- Dual box terminals make wiring safer and easier for cables with uneven cross-sections

Reversing Contactor Combinations with AC Coil ❶❷❸

General Use (A)		Maximum UL / CSA Horsepower Ratings				Auxiliary Contacts		Catalog Number	Price
		Three Phase							
Open	Enclosed	200 V	230 V	460 V	575 V	NO	NC		
20	18	1½	2	3	5	2	1	DIULM7/21◆ ❸	365
20	18	3	3	5	7½	2	1	DIULM9/21◆ ❸	380
20	18	3	3	10	10	2	1	DIULM12/21◆ ❸	400
40	36	7½	7½	10	15	2	1	DIULM17/21◆ ❸	500
40	36	7½	10	15	20	2	1	DIULM25/21◆	575
40	36	10	10	20	25	2	1	DIULM32/21◆	670
55	49	10	15	30	40	1	1	DIULM40/11◆	810
65	58	15	20	40	50	1	1	DIULM50/11◆	860
80	72	20	25	50	60	1	1	DIULM65/11◆	980

AC Coil Codes ❸

Complete catalog number (◆) with...	Voltage Range	
	50 Hz	60Hz
(24V60Hz)	–	24V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(220V60Hz)	190V	220V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

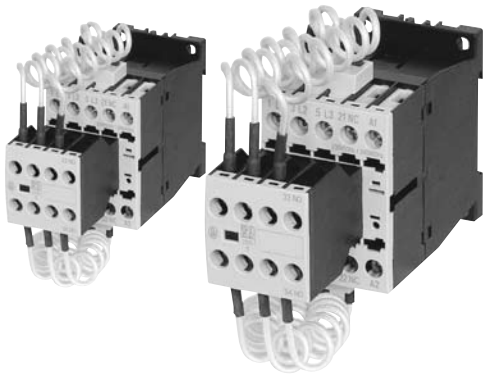
3 See pages A17 - A30 for auxiliaries & accessories

❶ Positively guided contacts within all auxiliary contact modules (including any internal auxiliaries). Mirror contacts on all contactors (in relation to internal or external auxiliaries).

❷ Contact elements of the contactor to EN 50012.

❸ Coils not replaceable.

- Economical solution for both individual and group power factor correction applications
- Special weld resistant contact material ensures longer life
- All units pre-wired and ready to install



Capacitor Switching Contactor; with Series Resistors ❶

Three-Phase Capacitors 50 – 60 Hz			Auxiliary Contacts			
240 V kvar	480 V kvar	600 V kvar	NO	NC	Catalog Number	Price
7	15	15	1	1	DILK12-11◆	243
12	20	30	1	1	DILK20-11◆	266
15	30	40	1	1	DILK25-11◆	412
20	40	50	1	0	DILK33-10◆	578
30	60	75	1	0	DILK50-10◆	1070

Application Note

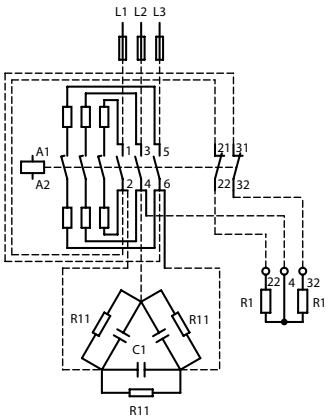
In the case of group compensation, multi-stage capacitor banks are connected to the main supply as required. In the process, transient currents of up to 180 x I_e can flow between the capacitors.

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.

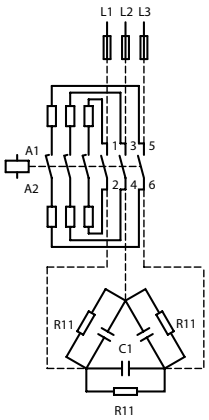
Moeller's Capacitor Switching Contactors are weld-resistant with inrush current peaks up to 180 x I_e due to their special contact material.

Through the use of quick-discharge resistors, the danger of complete polarity reversal in the event of rapidly recurring closure can be excluded. The resultant discharge times are 0.2s. Two additional normally closed auxiliary contacts on the contactor are required to switch the resistors. ❸

Circuit With Quick Discharge Resistor



Circuit Without Quick Discharge Resistor



AC Coil Codes ❶

Complete catalog number (◆) with…	Voltage Range	
	50 Hz	60Hz
(24V60Hz)	–	24V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(220V60Hz)	190V	220V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

Ordering Instructions

1 Locate the desired contactor

2 Complete catalog number by adding coil code

3 See pages A17 - A30 for auxiliaries & accessories

❶ Coil not replaceable.
❷ UL/CSA pending. Contact your Moeller representative.
❸ Moeller does not offer UL/CSA quick discharge resistors in North America.

- Seven compact frame sizes cover applications to 810A
- Space-saving design reduces panel space and cost
- Dual box terminals make wiring safer and easier for cables with uneven cross-sections
- New combination plug-in technology provides tool-less connection with other starting components for NEMA/EEMAC Size 00 & 0 contactors

3-Pole NEMA/EEMAC Rated Contactors with AC Coil *(to 810 Amps)* ❶❷

NEMA/ EEMAC Size	Continuous Current Rating (A)		Maximum UL / CSA Horsepower Ratings						Auxiliary Contacts		Catalog Number	Price
			Single Phase		Three Phase							
	Open	Enclosed	115 V	230 V	200 V	230 V	460 V	575 V	NO	NC		
00	–	9	1/3	1	1 1/2	1 1/2	2	2	1	0	DILM00N-10◆ ❸	100
0	–	18	1	2	3	3	5	5	1	0	DILM0N-10◆ ❸	130
1	32	27	2	3	7 1/2	7 1/2	10	10	1	0	DILM1N-10◆	175
2	52	45	3	7 1/2	10	15	25	25	0	0	DILM2N◆ ❹	250
3	104	90	7 1/2	15	25	30	50	50	0	0	DILM3N◆ ❹	480
4	156	135	–	–	40	50	100	100	0	0	DILM4N◆ ❹	820
5	311	270	–	–	75	100	200	200	0	0	DILM5N◆ ❺	2800
6	–	540	–	–	150	200	400	400	0	0	DILM6N◆ ❺	5741
7	–	810	–	–	–	300	600	600	0	0	DILM7N◆ ❺❻	9041

UL/CSA approval pending. Contact your Moeller representative for availability.

AC Coil Codes - DILM4N

Complete catalog number (◆) with…	Voltage Range
	50/60 Hz
(RAC24)	24V
(RAC120)	120V
(RAC240)	190V – 240V
(RAC500)	480V – 500V

AC Coil Codes - DILM00N – 3N ❼

Complete catalog number (◆) with…	Voltage Range	
	50 Hz	60Hz
(24V60Hz)	–	24V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(220V60Hz)	190V	220V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

AC Coil Codes - DILM5N – 7N

Complete catalog number (◆) with…	Voltage Range
	40 – 60 Hz
(RA110)	48 – 110V AC
(RA250)	110 – 250V AC
(RAC500)	250 – 500V AC

Ordering Instructions

1. Locate the desired contactor
2. Complete catalog number by adding coil code
3. See pages A17 - A30 for auxiliaries & accessories

❶ Positively guided contacts within all auxiliary contact modules (including any internal auxiliaries). Mirror contacts on all contactors (in relation to internal or external auxiliaries).
❷ Contact elements of the contactor to EN 50012.
❸ Coils not replaceable.
❹ May combine side mount and front mount auxiliary contact modules. Up to six auxiliary contacts possible.
❺ Do not reverse contactors directly.
❻ When operating with frequency inverters or when performing a high-voltage test, the suppressor on the load side must be removed.
❼ Other coil voltages between 24 and 600V AC available by special order. Contact your Moeller representative for information.

Moeller's catalog numbering system for most Accessories follows a logical system. Device attributes can be determined by the following nomenclature.

Dashes (–) are used to separate device attributes and should always be included when ordering.

DILM32 – X HI V 11 – SI

Type of Basic Unit

DILM32 ↓ ***DILM1000***	*Refers to the frame size of the device on which the Accessory is used. The numeric value ("32") is the largest device on which the Accessory will fit.*

Code for Accessories

X	*Signifies that the remaining characters in the part number describe an Accessory*

Accessory Type

HI	*Auxiliary contacts*
MV	*Mechanical interlocking*
SP	*Replacement coils*

Auxiliary Contact - Mounting Position

SI	*Side Mounting – inside*
SA	*Side Mounting – outside*

Auxiliary Contacts

10	*1 Normally Open - No Normally Closed*
20	*2 Normally Open - No Normally Closed*
31	*3 Normally Open - 1 Normally Closed*
40	*4 Normally Open - No Normally Closed*
01	*No Normally Open - 1 Normally Open*
02	*No Normally Open - 2 Normally Closed*
13	*1 Normally Open - 3 Normally Closed*
04	*No Normally Open - 4 Normally Closed*
22	*2 Normally Open - 2 Normally Closed*

Characteristic of Auxiliary Contacts

V	*1 Early Make – 1 Late Break Contact*

This page for reference only.
Please turn to the appropriate pages to determine
the exact device and/or accessories required for your application.

Auxiliary Contact Modules *(for DILEM Miniature Contactors)* ❶❷

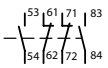
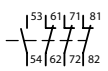
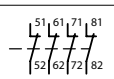
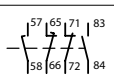
Auxiliary	NO	NC	Schematic	For use with...	Catalog Number	Price
Top Mount - Standard Terminal Markings						
	0	2		DILEM-10 DILEM-4	02DILEM	20
	1	1			11DILEM	20
	2	2			22DILEM	32
Top Mount - Alternative Terminal Markings						
	0	2		DILEM DILER	02DILE	20
	1	1			11DILE	20
	2	0			20DILE	20
	1EM ❸	1LB ❸			11DDILE	40
	0	4			04DILE	32
	1	3			13DILE	32
	2	2			22DILE	32
	3	1			31DILE	32
	4	0			40DILE	32
	1 + 1EM ❸	1 + 1LB ❸			22DDILE	60

❶ DILE Terminal Markings comply with European Standards EN 50005 while DILEM Terminal Markings comply with EN 50005 and EN 50012.

❷ Auxiliary Contact Modules have interlocked opposing contacts (does not apply to early-make or late-break contacts).

❸ EM = Early Make.
LB = Late Break.

Auxiliary Contact Modules *(for DILM7 – DILM32 Contactors)* ❶❷❸

Auxiliary	NO	NC	Schematic	For use with...	Catalog Number	Price
Top Mount - Standard Terminal Markings						
	1	1		DILM7-10 – DILM32-10 ❹	**DILM32-XHI11**	**26**
	0	2			**DILM32-XHI02**	**26**
	2	2			**DILM32-XHI22**	**46**
Top Mount - Alternative Terminal Markings						
	2	0		DILM7 – DILM32 DILA	**DILA-XHI20**	**26**
	1	1			**DILA-XHI11**	**26**
	0	2			**DILA-XHI02**	**26**
	1EM ❺	1LB ❺			**DILA-XHIV11**	**50**
	4	0			**DILA-XHI40**	**46**
	3	1			**DILA-XHI31**	**46**
	2	2			**DILA-XHI22**	**46**
	1	3			**DILA-XHI13**	**46**
	0	4			**DILA-XHI04**	**46**
	1 + 1EM ❺	1 + 1LB ❺			**DILA-XHIV22**	**72**

❶ DILM-7 – DILM-32 contactors include a built-in one pole auxiliary contact.

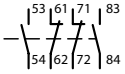
❷ Positively guided contacts with DILM7 – DILM32 between the integrated auxiliary contact and auxiliary contact module, as well as within the auxiliary contact modules (except DILA-XHIV11 early make/late break).

❸ Mirror contact with DILM7-01 – DILM32-01, as well as in combination with auxiliary contact modules.

❹ The 2 and 4-pole DILM32-XHI... auxiliary contact modules with terminal markings 21/22 cannot be used with DILM...-01 contactors. Use Top Mount DILA-XHI... with Alternative Terminal Markings instead.

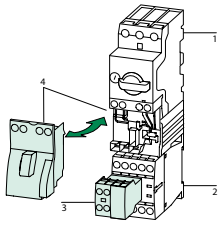
❺ EM = Early Make
LB = Late Break

Auxiliary Contact Modules *(for DILM7 – DILM32 Contactors)* ❶❷❸

Auxiliary	NO	NC	Schematic	For use with...	Catalog Number	Price
Side Mount - Alternative Terminal Markings						
	1	1		DILM17 – DILM32 ❹❺	**DILM32-XHI11-S**	**50**
Top Mount - High Version						
	2	0		DILM7 – DILM12 contactors when using the PKZM0-XDM12 Quick Connector or DILM12-XRL Reversing Kit.	**DILA-XHIT20**	**27**
	1	1			**DILA-XHIT11**	**27**
	0	2			**DILA-XHIT02**	**27**
	2	2			**DILA-XHIT22**	**48**

Application Note:

Top Mount-High Version auxiliary contact blocks are intended for use when combining DILM7 – 12 contactors with Moeller's PKZM0 self-protected starter. These contactors are designed to accept a "tool-less" plug connection (PKZM0-XDM12) that physically connects the two devices. The high profile of the auxiliary contact blocks allows access to the terminals after the plug connector is in place.



1 PKZM0
2 DILM7 - DILM12
3 DILA-XHIT
4 PKZM0-XDM12

❶ DILM7 – DILM32 contactors include a built-in one pole auxiliary contact.

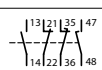
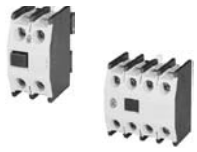
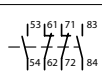
❷ Positively guided contacts with DILM7 – DILM32 between the integrated auxiliary contact and auxiliary contact module, as well as within the auxiliary contact modules (except DILA-XHIV11 early make/late break).

❸ Mirror contact with DILM7-01 – DILM32-01, as well as in combination with auxiliary contact modules.

❹ Snaps on to left side of contactor. Cannot be combined with top-mount auxiliary contacts or mechanical interlocks.

❺ Designed for use with contactors manufactured after date code of "4405" (**44**05 = week **44** of year 20**05**).

Auxiliary Contact Modules *(for DILM40 – DILM1000 Contactors)* ❶❷

Auxiliary	NO	NC	Schematic	For use with...	Catalog Number	Price
Top Mount - Standard Terminal Markings						
	2	0		DILM40 – DILM150	DILM150-XHI20	26
	1	1			DILM150-XHI11	26
	0	2			DILM150-XHI02	26
	4	0			DILM150-XHI40	46
	3	1			DILM150-XHI31	46
	2	2			DILM150-XHI22	46
	1	3			DILM150-XHI13	46
	0	4			DILM150-XHI04	46
	1 + 1EM ❸	1 + 1LB ❸			DILM150-XHIV22	72
Top Mount - Alternative Terminal Markings						
	1	1		DILM40 – DILM150	DILM150-XHIA11	26
	2	2			DILM150-XHIA22	46
Side Mount - Standard Terminal Markings						
	1	1		DILM40 – DILM1000	DILM1000-XHI11-SI	46
	1EM ❸	1LB ❸			DILM1000-XHIV11-SI	46
Side Mount - Alternative Terminal Markings						
	1	1		DILM40 – DILM1000	DILM1000-XHI11-SA	46

See Auxiliary Contact Combination Chart on next page.

❶ Positively guided contacts with DILM40 – DILM65 within the auxiliary contact module.

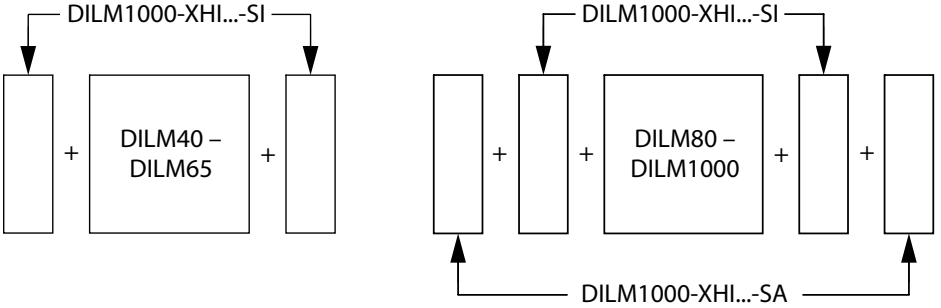
❷ Mirror contact with DILM40 – DILM65 in combination with auxiliary contact module.

❸ EM = Early Make.
LB = Late Break.

Auxiliary Contact Combination Chart *(DILM40 – DILM1000 contactors)*

Maximum possible combination of auxiliary contacts when using the following contactors		 DILM1000-XHI(V)11-SI	 DILM1000-XHI(V)11-SA ❶ *(alternative terminal markings; for outside mounting only)*	 DILM150-XHI20 DILM150-XHI11 DILM150-XHI02	 DILM150-XHI40 DILM150-XHI31 DILM150-XHI(V)22 DILM150-XHI13 DILM150-XHI04	 DILM150-XHIA11 *(alternative terminal markings)*	 DILM150-XHIA22 *(alternative terminal markings)*
 DILM40 – 65	Option #1	2x				1x	
	Option #2		2x	1x			
	Option #3	1x					1x
	Option #4		1x		1x		
 DILM80 – 150	Option #1	2x	2x				
	Option #2	2x					1x
	Option #3	2x				1x	
	Option #4		2x		1x		
	Option #5		2x	1x			
 DILM185 – 1000	Option #1	2x	2x				

Side Mount Auxiliary Contact Fitting Options



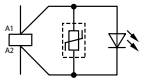
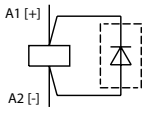
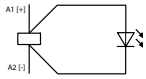
❶ Can only be mounted to Type . . .-SI contact module; Will not fit directly on contactor.

Suppressors and Voltage Indicator ❶

Module	Description	Supply Voltage	Schematic	For use with...	Catalog Number	Price
RC Suppressors ❶						
	• For AC operated contactors (50 – 60 Hz) • Please be aware that RC Suppressors can cause a drop-out delay	24 – 48V AC		DILEM DILER	**RCDILE48**	**32**
		110 – 250V AC			**RCDILE250**	**32**
	• For AC operated contactors (50 – 60 Hz) • DC operated Contactors have an integrated suppressor. Please be aware that Suppressors can cause a drop-out delay	24 – 48V AC		DILM7 – DILM12 DILMP20 DILA	**DILM12-XSPR48**	**45**
		110 – 240V AC			**DILM12-XSPR240**	**45**
		240 – 500V AC			**DILM12-XSPR500**	**45**
		24 – 48V AC		DILM17 – DILM32	**DILM32-XSPR48**	**50**
		110 – 240V AC			**DILM32-XSPR240**	**50**
		240 – 500V AC			**DILM32-XSPR500**	**50**
		24 – 48V AC		DILM40 – DILM95	**DILM95-XSPR48**	**64**
		110 – 240V AC			**DILM95-XSPR240**	**64**
		240 – 500V AC			**DILM95-XSPR500**	**64**
Varistor Suppressors ❶						
	• For AC operated Contactors (50 – 60 Hz) • DC operated Contactors have an integrated suppressor	24 – 48V AC		DILEM DILER	**VGDILE48**	**28**
		110 – 250V AC			**VGDILE250**	**28**
		380 – 415V AC			**VGDILE415**	**28**
	• For AC operated Contactors (50 – 60 Hz) • DC operated Contactors have an integrated suppressor	24 – 48V AC		DILM7 – DILM12 DILMP20 DILA	**DILM12-XSPV48**	**45**
		48 – 130V AC			**DILM12-XSPV130**	**45**
		130 – 240V AC			**DILM12-XSPV240**	**45**
		240 – 500V AC			**DILM12-XSPV500**	**45**
		24 – 48V AC		DILM17 – DILM32	**DILM32-XSPV48**	**50**
		48 – 130V AC			**DILM32-XSPV130**	**50**
		130 – 240V AC			**DILM32-XSPV240**	**50**
		240 – 500V AC			**DILM32-XSPV500**	**50**
		24 – 48V AC		DILM40 – DILM95	**DILM95-XSPV48**	**64**
		48 – 130V AC			**DILM95-XSPV130**	**64**
		130 – 240V AC			**DILM95-XSPV240**	**64**
		240 – 500V AC			**DILM95-XSPV500**	**64**

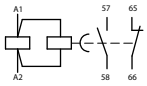
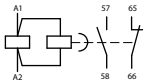
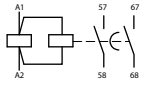
❶ RC Suppressor and Varistor Suppressor cannot be used at the same time.

Suppressors and Voltage Indicator *(continued)* ❶

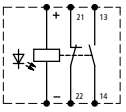
Module	Description	Supply Voltage	Schematic	For use with...	Catalog Number	Price
Varistor Suppressor with Integrated LED ❶						
	• For AC operated Contactors (50 – 60 Hz). • DC operated Contactors have an integrated suppressor.	24 – 48V AC		DILM7 – DILM12 DILMP20 DILA	**DILM12-XSPVL48**	**50**
		130 – 240V AC			**DILM12-XSPVL240**	**50**
		24 – 48V AC		DILM17 – DILM32	**DILM32-XSPVL48**	**55**
		130 – 240V AC			**DILM32-XSPVL240**	**55**
		24 – 48V AC		DILM40 – DILM95	**DILM95-XSPVL48**	**68**
		130 – 240V AC			**DILM95-XSPVL240**	**68**
Free-wheel Diode Suppressor						
	• For DC operated Contactors. • Functions in addition to the built-in DC suppressor circuit. Prevents negative breaking voltage when relays are used with sensitive electronics.	12 – 250V DC		DILM7 – DILM12 DILMP20 DILA	**DILM12-XSPD**	**27**
Voltage Indicator						
	• Indicates presence of control voltage. • For DC operated Contactors.	12 – 48V DC		DILM7 – DILM12 DILMP20 DILA	**DILM12-XSPI48**	**35**
		48 – 130V DC			**DILM12-XSPI130**	**35**
		110 – 250V DC			**DILM12-XSPI250**	**35**
		RDC24		DILM17 – DILM32	**DILM32-XSPI48**	**40**
		RDC60; RDC130			**DILM32-XSPI130**	**40**
		RDC240			**DILM32-XSPI250**	**40**
	• For DC operated contactors DILM40 – DILM95 and AC or DC contactors DILM115 and DILM150	RDC24; RAC24; RAC48		DILM40 – DILM150	**DILM150-XSPI48**	**45**
		RDC120; RAC60; RAC130			**DILM150-XSPI130**	**45**
		RDC240; RAC240			**DILM150-XSPI250**	**45**

❶ RC Suppressor and Varistor Suppressor cannot be used at the same time.

Electronic Timing Modules

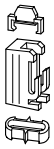
Module	Description	Supply Voltage	Timing Range (sec)	Schematic	For use with...	Catalog Number	Price
	**ON delay** May not be combined with Auxiliary Contact Blocks, Suppressors or Voltage Indicator.	24V AC/DC	Selectable: 0.05 – 1 0.5 – 10 5 – 100		DILM7 – DILM32 DILMP20 DILA	**DILM32-XTEE11(RA24)**	**157**
		100 – 130V AC				**DILM32-XTEE11(RAC130)**	**157**
		200 – 240V AC				**DILM32-XTEE11(RAC240)**	**157**
	**OFF delay** May not be combined with Auxiliary Contact Blocks, Suppressors or Voltage Indicator.	24V AC/DC	0.05 – 1		DILM7 – DILM32 DILMP20 DILA	**DILM32-XTED11-1(RA24)**	**175**
			0.5 – 10			**DILM32-XTED11-10(RA24)**	**175**
			5 – 100			**DILM32-XTED11-100(RA24)**	**175**
		100 – 130V AC	0.05 – 1			**DILM32-XTED11-1(RAC130)**	**175**
			0.5 – 10			**DILM32-XTED11-10(RAC130)**	**175**
			5 – 100			**DILM32-XTED11-100(RAC130)**	**175**
		200 – 240V AC	0.05 – 1			**DILM32-XTED11-1(RAC240)**	**175**
			0.5 – 10			**DILM32-XTED11-10(RAC240)**	**175**
			5 – 100			**DILM32-XTED11-100(RAC240)**	**175**
	**STAR-DELTA applications** May not be combined with Auxiliary Contact Blocks, Suppressors or Voltage Indicator.	24V AC/DC	1 – 30 Switching break, 50ms		DILM7 – DILM32 DILMP20	**DILM32-XTEY20(RA24)**	**175**
		100 – 130V AC				**DILM32-XTEY20(RAC130)**	**175**
		200 – 240V AC				**DILM32-XTEY20(RAC240)**	**175**
Transparent Cover							
	Snap-mounts onto the Timing Module to prevent tampering				DILM32-XTE...	**DILM32-XTEPLH**	**9**

Miscellaneous Modules

Module	Description	Supply Voltage / Current Rating	Schematic	For use with...	Catalog Number	Price
Amplifier Module						
	• DC operated • Interposing relay that provides a dry contact signal to activate an AC operated Contactor or Relay; Actuates on as little as 25mA	24V DC [25mA...2A] ❶		When 24V DC low current [25mA...2A] control is required to operate AC coils ❶	**ETS4-VS3**	**161**
4th Pole						
	• Only for resistive loads. • Suitable for isolating non-grounded and poorly grounded neutral conductors	30 A		DILM40	**NDIL0M**	**38**
		44 A		DILM40	**NDIL1M**	**67**
		60 A		DILM50 – DILM65	**NDIL2M**	**91**

❶ When contactor AC coil is over 2A, use DILER or DILEM-G relay instead.

Connectors

Connector	Description	For use with...	Catalog Number	Price
	• Provides a mechanical link when coupling multiple contactors together • Distance between Contactors = 0 mm	DILEM	**V0DILE**	**0.60**
		DILM7 – DILM65	**DILM32-XVB** *(sold in 50 pack only price shown is for each)*	**1**
		DILM80 – DILM150	**DILM150-XVB**	**1**

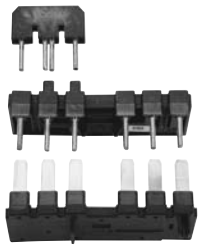
Mechanical Interlocks

Mechanical Interlocks	Description	For use with...	Catalog Number	Price
	• For two contactors with AC or DC operated magnet systems • Distance between Contactors = 0 mm • Mechanical Lifespan = 2.5 x 10^6 operations • Additional auxiliary contact modules can be fitted	DILEM	**MVDILE**	**20**
	• For two contactors with AC or DC operated magnet systems • Distance between Contactors = 0 mm • Mechanical Lifespan = 2.5 x 10^6 operations • Additional auxiliary contact modules can be fitted	DILM7 – DILM12 DILMP20	**DILM12-XMV**	**18**
		DILM17 – DILM32	**DILM32-XMV**	**18**
		DILM40 – DILM65	**DILM65-XMV**	**24**
		DILM80 – DILM150	**DILM150-XMVE**	**24**
	• Same as above; includes mounting plate	DILM80 – DILM150	**DILM150-XMV**	**225**
	• For two contactors with the same or different magnetic systems • Mechanical lifespan 5 x 10^6 operations. No auxiliary contact is possible between the mechanical interlock and contactor • Combination with same frame size only • Distance between contactors: 15 mm	DILM185 – DILM500	**DILM500-XMV**	**62**
	• For two contactors with the same or different magnetic systems • Mechanical lifespan 5 x 10^6 operations. No auxiliary contact is possible between the mechanical interlock and contactor • DILM820-XMV consists of interlock element and mounting support plate	DILM580 – DILM1000	**DILM820-XMV**	**550**

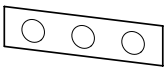
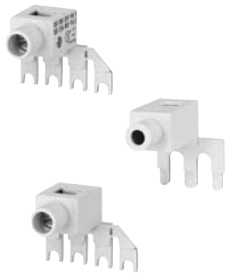
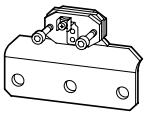
Reversing Kits

Reversing Kits	Description	For use with...	Catalog Number	Price
	• Consisting of one 3-pole paralleling link with control bridge and reversing link with A2 bridge	DILEM+MVDILEM	**MVS-WB-EM**	**25**
	• Main current wiring for reversing combinations • Tool-less plug connection on face of contactor • Control cables are integrated, in addition to electrical interlock • If using auxiliary contacts, use Top Mount - High Version (DILA-XHIT...)	DILM7 – DILM12	**DILM12-XRL**	**30**
	• Main current wiring for reversing combinations	DILM17 – DILM32	**DILM32-XRL**	**50**
		DILM40 – DILM65	**DILM65-XRL**	**95**
		DILM80 – DILM150	**DILM150-XRL**	**467**
UL/CSA pending. Contact your Moeller representative.				

Star-Delta Wiring Kits

Star-Delta Wiring Kit	Description	For use with...	Catalog Number	Price
	• Main current wiring for star-delta combinations (including star-point bridge) • Tool-less plug connection on face of contactor • Control cables are integrated, in addition to electrical interlock • If using auxiliary contacts, use Top Mount - High Version (DILA-XHIT...)	DILM7 – DILM12	**DILM12-XSL**	**45**
	• Main current wiring for star-delta combinations	DILM17 – DILM32	**DILM32-XSL**	**65**
	• Main current wiring for star-delta combinations	DILM40 – DILM65	**DILM65-XSL**	**115**

Bridges, Links and Jumpers

Bridges	Description	For use with...	Catalog Number	Price
Star-Point Bridges				
	• Finger-safe (in accordance with IEC 536)	DILEM	**S1DILEM**	**20**
		DILM7 – DILM12	**DILM12-XS1** ❶	**20**
		DILM17 – DILM32	**DILM32-XS1**	**20**
		DILM40 – DILM65	**DILM65-XS1**	**28**
		DILM80 – DILM150	**DILM150-XS1**	**63**
	• A cover is included for protection against accidental contact	DILM185 – DILM400	**DILM400-XS1**	**140**
		DILM500	**DILM500-XS1**	**180**
Paralleling Bridges *(Consisting of two paralleling links)*				
	• 4th pole can be broken off. • 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). *Terminal capacity can be found in the Technical Data section.*	DILEM	**P1DILEM**	**25**
		DILM7 – DILM12	**DILM12-XP1**	**16**
		DILM17 – DILM32	**DILM32-XP1**	**30**
		DILM40 – DILM65	**DILM65-XP1**	**40**
		DILM80 – DILM150	**DILM150-XP1**	**165**
	• 3-pole • AC-1 current carrying capacity of the open Contactor increases by a factor of 2.5. • A cover is included for protection against accidental contact.	DILM185	**DILM185-XP1**	**268**
Three-phase Commoning Links				
	• For linking three contactors; length 135mm • Rated to 690V; 63A general purpose • Protected against accidental contact; short circuit proof	DILM7 – DILM12	**DILM12-XDSB0/3**	**30**
	• For linking four contactors; length 180mm • Rated to 690V; 63A general purpose • Protected against accidental contact; short circuit proof		**DILM12-XDSB0/4**	**35**
	• For linking five contactors; length 225mm • Rated to 690V; 63A general purpose • Protected against accidental contact; short circuit proof		**DILM12-XDSB0/5**	**38**
Jumper				
	• For parallel connection of auxiliary contacts • Not insulated • Standard quantity: 100 *Must be ordered in standard quantity*	DILEM DILER	**BT480**	**0.80**

❶ Tool-less plug connection on face of contactor. If using auxiliary contacts, use Top Mount, High Version (DILA-XHIT...).

Connection Tabs

For Fast-On Connectors	Description	For use with...	Catalog Number	Price
	• 1 x (6.3 x 0.8) mm or 2 x (2.8 x 0.8) mm • For auxiliary contact and coil connections • Use connectors with insulated sleeves. • Standard quantity: 100 *Must be ordered in standard quantity.*	DILEM DILM185 – DILM1000 DILER	**BT483**	**0.80**
		DILM185 – DILM1000	**BT2571**	**0.80**

Terminal Blocks, Lugs, Kits and Accessories ❶

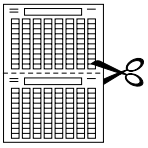
Terminal Blocks & Kits	Description	For use with...	Catalog Number	Price
Cable Terminal Blocks				
	• Terminal capacity: 1 x (AWG 6 – MCM 350) or 2 x (AWG 6 – MCM 300)	DILM185 DILM225	**DILM225-XKU-S**	**120**
	• Terminal capacity: 1 x (1/Ø – MCM 600) or 2 x (1/Ø – MCM 500)	DILM250 – DILM400	**DILM400-XKU-S**	**125**
	• Consists of three individual terminals (Cu, Al), with integrated control circuit terminal; Terminal cover included • Terminal capacity: 2 x (AWG 4 – MCM 500)	DILM500/22	**DILM500-XK-CNA**	**140**
	• Consists of three individual terminals (Cu, Al), with integrated control circuit terminal; Terminal cover included • Terminal capacity: 2 x (AWG 2 – MCM 500)	DILM580/22 DILM650/22	**DILM650-XK-CNA**	**250**
	• Consists of three individual terminals (Cu, Al) • Terminal capacity: 4 x (AWG 2 – MCM 500)	DILM750/22 DILM820/22	**DILM820-XK-CNA**	**530**
Flat Strip Conductor Terminal Kit				
	• Includes three flat strip conductor terminals and control circuit terminal • For bus and flexibus connection *See Technical Data for terminal capacity.*	DILM500 – DILM650	**DILM650-XKB-S**	**110**
		DILM750 DILM820	**DILM820-XKB-S**	**115**
Control Circuit Tap				
	• Pressure connector that mounts directly to a power terminal for feeding a control circuit • 15A, 600V maximum; AWG 18 – 14	DILM80 – DILM150	**DILM150-XZK**	**8**

❶ No factory lugs available for DILM1000 size contactors

Covers

Covers	Description	For use with...	Catalog Number	Price
Sealable Shrouds				
	• Cover snap-mounts onto the device and can be sealed to prevent tampering.	DILEM DILER	**HDILE**	**6**
Terminal Insert				
	• Provides finger-safe protection (IP2x) by covering the unused terminal in contactors with dual power terminals • One package includes 8 Terminal Covers	DILM40 – DILM65	**DILM65-XIP2X**	**3**
		DILM80 – DILM150	**DILM150-XIP2X**	**4**
Terminal Cover				
	• Protection against shock hazards and accidental contact.	DILM185 – DILM400	**DILM400-XHB**	**30**
		DILM500	**DILM500-XHB**	**34**
		DILM580 – DILM650	**DILM650-XHB**	**74**
		DILM750 – DILM1000	**DILM820-XHB**	**85**

Device Labeling

Accessory	Description	For use with...	Catalog Number	Price
	• For inscriptions using a laser printer, plotter, marker pen or copier • 240 labels per sheet (A4 size sheet); Can be split into two A5 sheets	As required	**XGKE-GE**	**5.20**

AC Coils DILM17 – DILM65 Contactors ❶

Coil Voltage 50Hz	Coil Voltage 60Hz	For Use With...	Catalog Number (Shading indicates standard voltages)	Price
24	–	DILM17 DILM25 DILM32 DIULM17 DIULM25 DIULM32 DILK20 DILK25 DILK33	DILM32-XSP(24V50HZ)	72
48	–		DILM32-XSP(48V50HZ)	72
240	–		DILM32-XSP(240V50HZ)	72
500	–		DILM32-XSP(500V50HZ)	72
–	24		DILM32-XSP(24V60HZ)	72
–	110		DILM32-XSP(110V60HZ)	72
–	115		DILM32-XSP(115V60HZ)	72
–	208		DILM32-XSP(208V60HZ)	72
–	600		DILM32-XSP(600V60HZ)	72
42	48		DILM32-XSP(42V50HZ,48V60HZ)	72
110	120		DILM32-XSP(110V50HZ,120V60HZ)	72
190	220		DILM32-XSP(190V50HZ,220V60HZ)	72
220	240		DILM32-XSP(220V50HZ,240V60HZ)	72
230	240		DILM32-XSP(230V50HZ,240V60HZ)	72
380	440		DILM32-XSP(380V50HZ,440V60HZ)	72
400	440		DILM32-XSP(400V50HZ,440V60HZ)	72
415	480		DILM32-XSP(415V50HZ,480V60HZ)	72
24	24		DILM32-XSP(24V50/60HZ)	72
42	42		DILM32-XSP(42V50/60HZ)	72
110	110		DILM32-XSP(110V50/60HZ)	72
220	220		DILM32-XSP(220V50/60HZ)	72
230	230		DILM32-XSP(230V50/60HZ)	72
380	380		DILM32-XSP(380V50/60HZ)	72
24	–	DILM40 DILM50 DILM65 DIULM40 DIULM50 DIULM65 DILK50	DILM65-XSP(24V50HZ)	90
48	–		DILM65-XSP(48V50HZ)	90
240	–		DILM65-XSP(240V50HZ)	90
500	–		DILM65-XSP(500V50HZ)	90
–	24		DILM65-XSP(24V60HZ)	90
–	110		DILM65-XSP(110V60HZ)	90
–	115		DILM65-XSP(115V60HZ)	90
–	208		DILM65-XSP(208V60HZ)	90
–	600		DILM65-XSP(600V60HZ)	90
42	48		DILM65-XSP(42V50HZ,48V60HZ)	90
110	120		DILM65-XSP(110V50HZ,120V60HZ)	90
190	220		DILM65-XSP(190V50HZ,220V60HZ)	90
220	240		DILM65-XSP(220V50HZ,240V60HZ)	90
230	240		DILM65-XSP(230V50HZ,240V60HZ)	90
380	440		DILM65-XSP(380V50HZ,440V60HZ)	90
400	440		DILM65-XSP(400V50HZ,440V60HZ)	90
415	480		DILM65-XSP(415V50HZ,480V60HZ)	90
24	24		DILM65-XSP(24V50/60HZ)	90
42	42		DILM65-XSP(42V50/60HZ)	90
110	110		DILM65-XSP(110V50/60HZ)	90
220	220		DILM65-XSP(220V50/60HZ)	90
230	230		DILM65-XSP(230V50/60HZ)	90
380	380		DILM65-XSP(380V50/60HZ)	90

AC Coils DILM80 – DILM95 Contactors ❶

Coil Voltage 50Hz	Coil Voltage 60Hz	For Use With...	Catalog Number (Shading indicates standard voltages)	Price
24	–	DILM80 DILM95	DILM95-XSP(24V50HZ)	123
48	–		DILM95-XSP(48V50HZ)	123
240	–		DILM95-XSP(240V50HZ)	123
500	–		DILM95-XSP(500V50HZ)	123
–	24		DILM95-XSP(24V60HZ)	123
–	110		DILM95-XSP(110V60HZ)	123
–	115		DILM95-XSP(115V60HZ)	123
–	208		DILM95-XSP(208V60HZ)	123
–	600		DILM95-XSP(600V60HZ)	123
42	48		DILM95-XSP(42V50HZ,48V60HZ)	123
110	120		DILM95-XSP(110V50HZ,120V60HZ)	123
190	220		DILM95-XSP(190V50HZ,220V60HZ)	123
220	240		DILM95-XSP(220V50HZ,240V60HZ)	123
230	240		DILM95-XSP(230V50HZ,240V60HZ)	123
380	440		DILM95-XSP(380V50HZ,440V60HZ)	123
400	440		DILM95-XSP(400V50HZ,440V60HZ)	123
415	480		DILM95-XSP(415V50HZ,480V60HZ)	123
24	24		DILM95-XSP(24V50/60HZ)	123
42	42		DILM95-XSP(42V50/60HZ)	123
110	110		DILM95-XSP(110V50/60HZ)	123
220	220		DILM95-XSP(220V50/60HZ)	123
230	230		DILM95-XSP(230V50/60HZ)	123
380	380		DILM95-XSP(380V50/60HZ)	123

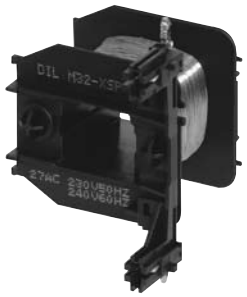
DC Coils DILM17 – DILM150 Contactors ❶

Coil Voltage V DC	For Use With...	Catalog Number (Shading indicates standard voltages)	Price
24 – 27	DILM17 – DILM32	DILM32-XSP(RDC24)	190
48 – 60		DILM32-XSP(RDC60)	190
110 – 130		DILM32-XSP(RDC130)	190
200 – 240		DILM32-XSP(RDC240)	190
24 – 27	DILM40 – DILM65	DILM65-XSP(RDC24)	250
48 – 60		DILM65-XSP(RDC60)	250
110 – 130		DILM65-XSP(RDC130)	250
200 – 240		DILM65-XSP(RDC240)	250
24 – 27	DILM80 – DILM95	DILM95-XSP(RDC24)	243
48 – 60		DILM95-XSP(RDC60)	243
110 – 130		DILM95-XSP(RDC130)	243
200 – 240		DILM95-XSP(RDC240)	243
24 – 27	DILM115 – 150	DILM150-XSP(RDC24)	260
48 – 60		DILM150-XSP(RDC60)	260
110 – 130		DILM150-XSP(RDC130)	260
200 – 240		DILM150-XSP(RDC240)	260

❶ Special Voltage Coils are available - Contact your Moeller Representative.

DILM115 – DILM1000 Contactors *(Electronic Modules including coil)*

Coil Voltage		For Use With...	Catalog Number	Price
AC	DC			
24V 50 – 60Hz	See preceding page for DC voltages	DILM115 – 150	DILM150-XSP(RAC24)	210
42 – 48V 50 – 60Hz			DILM150-XSP(RAC48)	210
100 – 120V 50 – 60Hz			DILM150-XSP(RAC120)	210
190 – 240V 50 – 60Hz			DILM150-XSP(RAC240)	210
380 – 440V 50Hz			DILM150-XSP(RAC440)	210
480 – 500V 50 – 60Hz			DILM150-XSP(RAC500)	210
–	24 – 48V	DILM185 – 250	DILM250-XSP/E(RDC48)	600
48 – 110V 40...60Hz	48 – 110V		DILM250-XSP/E(RA110)	600
110 – 250V 40 – 60Hz	110 – 250V		DILM250-XSP/E(RA250)	600
250...500V 40 – 60Hz	–		DILM250-XSP/E(RAC500)	600
–	24 – 48V	DILM300 – 500	DILM500-XSP/E(RDC48)	910
48 – 110V 40 – 60Hz	48 – 110V		DILM500-XSP/E(RA110)	910
110 – 250V 40 – 60Hz	110 – 250V		DILM500-XSP/E(RA250)	910
250 – 500V 40 – 60Hz	–		DILM500-XSP/E(RAC500)	910
48 – 110V 40 – 60Hz	48 – 110V	DILM580 – 820	DILM820-XSP/E(RA110)	1475
110 – 250V 40 – 60Hz	110 – 250V		DILM820-XSP/E(RA250)	1475
250 – 500V 40 – 60Hz	–		DILM820-XSP/E(RAC500)	1475
48 – 110V 40 – 60Hz	48 – 110V	DILM1000	DILM1000-XSP/E(RA110)	1480
110 – 250V 40 – 60Hz	110 – 250V		DILM1000-XSP/E(RA250)	1480
250 – 500V 40 – 60Hz	–		DILM1000-XSP/E(RAC500)	1480



DILM32-XSP... replacement coil. (typical)

Replacement Contacts *(set of 3)*

Main Contacts	For Use With...	Catalog Number	Price
	DILM40 – 65	DILM65-XCT	254
	DILM80 – 95	DILM95-XCT	230
	DILM115 – 150	DILM150-XCT	368
	DILM185 – 250	DILM250-XCT	437
	DILM300 – 500	DILM500-XCT	900
	DILM580	DILM580-XCT	2950
	DILM650	DILM650-XCT	3356
	DILM750	DILM750-XCT	3765
	DILM820	DILM820-XCT	4305

Replacement Arc Chutes

Arc Chutes	For Use With...	Catalog Number	Price
	DILM185	DILM185-XOT	245
	DILM225	DILM225-XOT	245
	DILM250	DILM250-XOT	216
	DILM300	DILM300-XOT	345
	DILM400	DILM400-XOT	345
	DILM500	DILM500-XOT	345

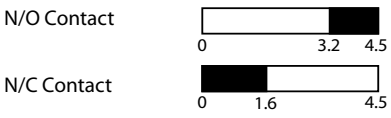
Travel Diagrams for Contactors

The diagrams show the closing and opening clearance of built-in auxiliary contacts and modules at no-load. Clearances of add-on auxiliary contact modules are shown relative to the contactor on which they are mounted. Tolerances are not taken into consideration.

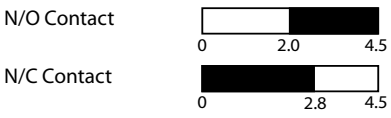
DILM7/9/12/P20...AC Contactors

Built-in Auxiliary Contact

+ DILM32-XHI... Auxiliary Contact



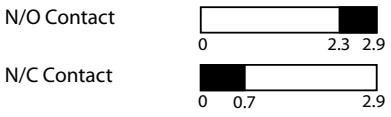
+ DILA-XHIV... Auxiliary (EM/LB)



DILM7/9...DC Contactors

Built-in Auxiliary Contact

+ DILM32-XHI... Auxiliary Contact



+ DILA-XHIV... Auxiliary (EM/LB)

DILM12/P20...DC Contactors

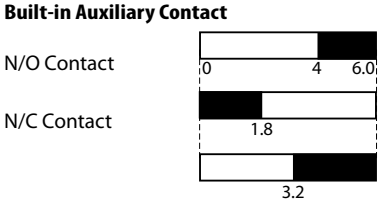
Built-in Auxiliary Contact

+ DILM32-XHI... Auxiliary Contact

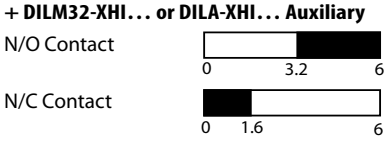
+ DILA-XHIV... Auxiliary (EM/LB)

DILM17/25/32 Contactors

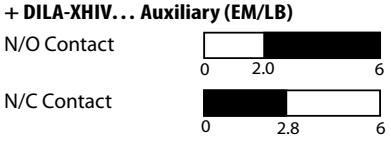
Built-in Auxiliary Contact



+ DILM32-XHI... or DILA-XHI... Auxiliary

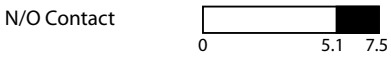


+ DILA-XHIV... Auxiliary (EM/LB)



DILM40/50/65 Contactors

Built-in Auxiliary Contact



+ DILM150-XHI... Auxiliary Contact

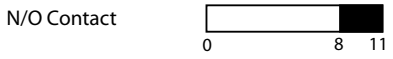
+ DILM150-XHIV... Auxiliary (EM/LB)

+ DILM1000-XHI... Auxiliary Contact

+ DILM1000-XHIV... Auxiliary (EM/LB)

DILM80/95/115/150 Contactors

Built-in Auxiliary Contact



+ DILM150-XHI... Auxiliary Contact

+ DILM150-XHIV... Auxiliary (EM/LB)

+ DILM1000-XHI... Auxiliary Contact

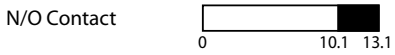
+ DILM1000-XHIV... Auxiliary (EM/LB)

Travel Diagrams for Contactors *(continued)*

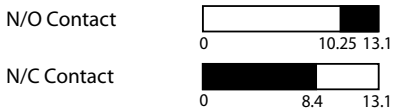
The diagrams show the closing and opening clearance of built-in auxiliary contacts and modules at no-load. Clearances of add-on auxiliary contact modules are shown relative to the contactor on which they are mounted. Tolerances are not taken into consideration.

DILM185/225/250 Contactors

Built-in Auxiliary Contact



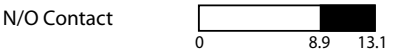
+ DILM1000-XHI11 Auxiliary Contact



+ DILM1000-XHI11V-SI Auxiliary (EM/LB)

DILM300/400/500 Contactors

Built-in Auxiliary Contact

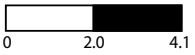


+ DILM1000-XHI11 Auxiliary Contact

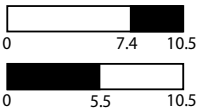
+ DILM1000-XHI11V-SI Auxiliary (EM/LB)

DILM580/650 Contactors

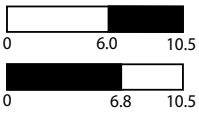
Built-in Auxiliary Contact



+ DILM1000-XHI11 Auxiliary Contact



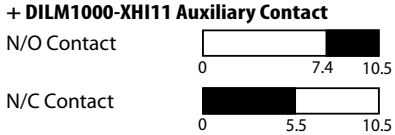
+ DILM1000-XHI11V-SI Auxiliary (EM/LB)



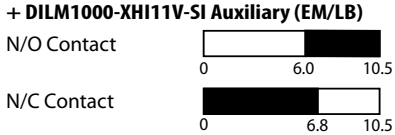
DILM750/820/1000 Contactors

Built-in Auxiliary Contact

+ DILM1000-XHI11 Auxiliary Contact

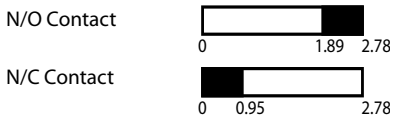


+ DILM1000-XHI11V-SI Auxiliary (EM/LB)



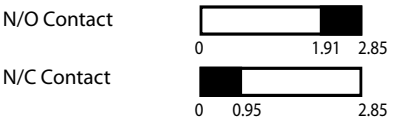
DILEM…AC Miniature Contactors

Built-in Auxiliary Contact

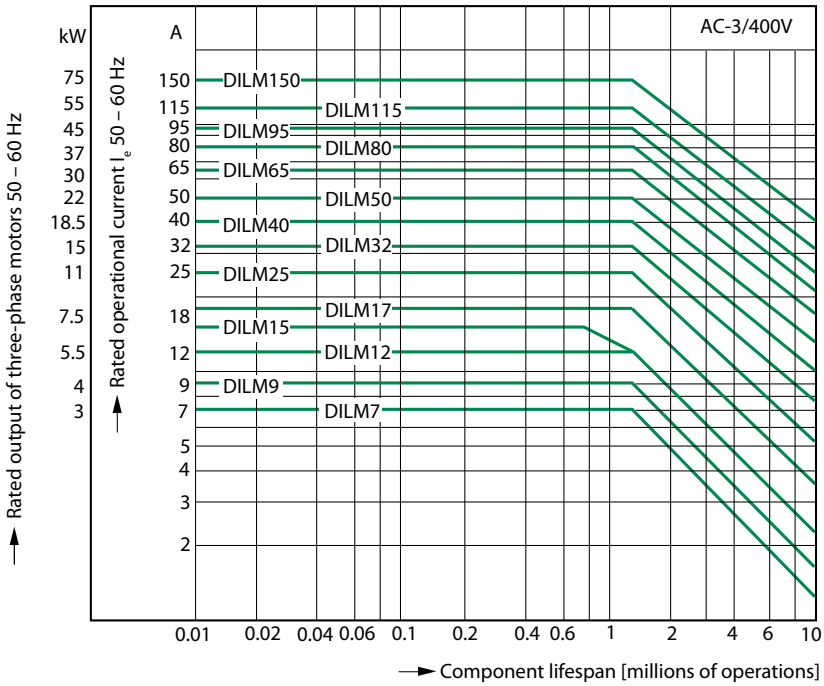


DILEM…DC Miniature Contactors

Built-in Auxiliary Contact



AC-3 Normal Switching Duty *(DILM7 – DILM150)*



Squirrel-Cage Motors

Operating Characteristics:
Starting: from rest
Stopping: after attaining full running speed

Electrical Characteristics:
Make: up to 6 x rated motor current
Break: up to 1 x rated motor current

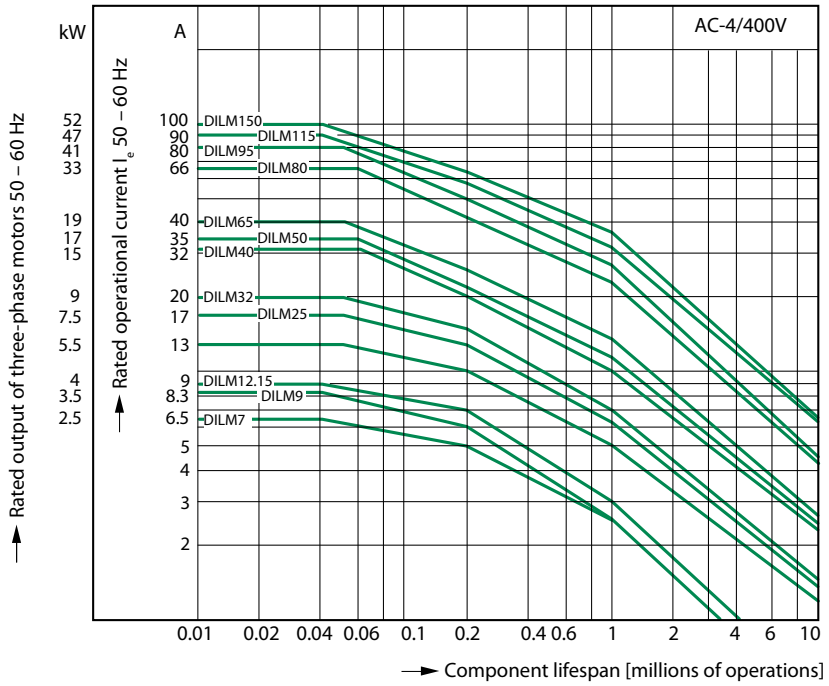
Utilization Category:
100% AC-3

Typical Applications:

Compressors	Elevators
Pumps	Escalators
Fans	Conveyor Belts
Hinged Flaps/Valves	Bucket-elevators
Mixers	Agitators
Centrifuges	Air-conditioning Systems

General drives in manufacturing and processing machines

AC-4 Extreme Switching Duty *(DILM7 – DILM150)*



Squirrel-Cage Motors

Operating Characteristics:
Jogging, plugging, reversing

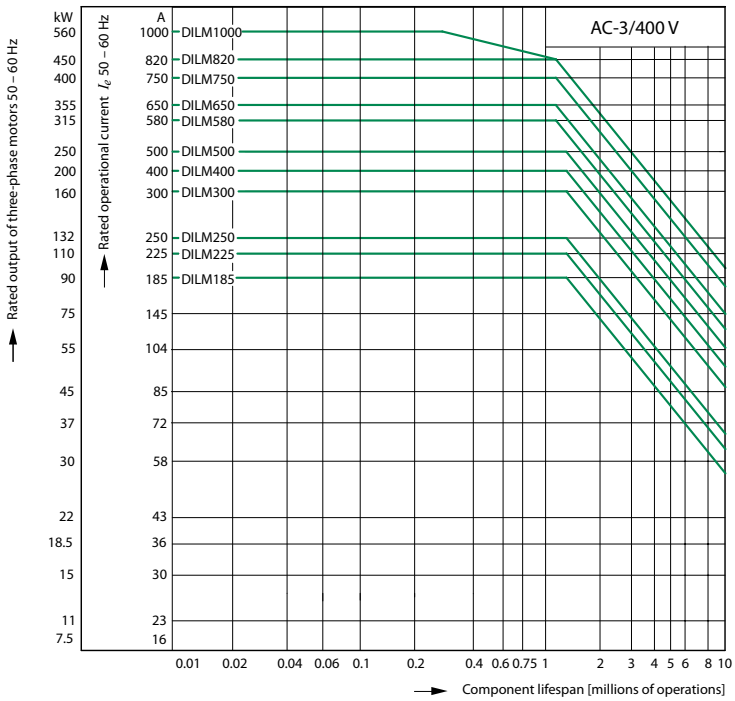
Electrical Characteristics:
Make: up to 6 x rated motor current
Break: up to 6 x rated motor current

Utilization Category:
100% AC-4

Typical Applications:
Printing Presses
Wire Drawing Machines
Centrifuges

Special drives for manufacturing and processing machines

AC-3 Normal Switching Duty *(DILM185 – DILM1000)*



Squirrel-Cage Motors

Operating Characteristics:
Starting: from rest
Stopping: after attaining full running speed

Electrical Characteristics:
Make: up to 6 x rated motor current
Break: up to 1 x rated motor current

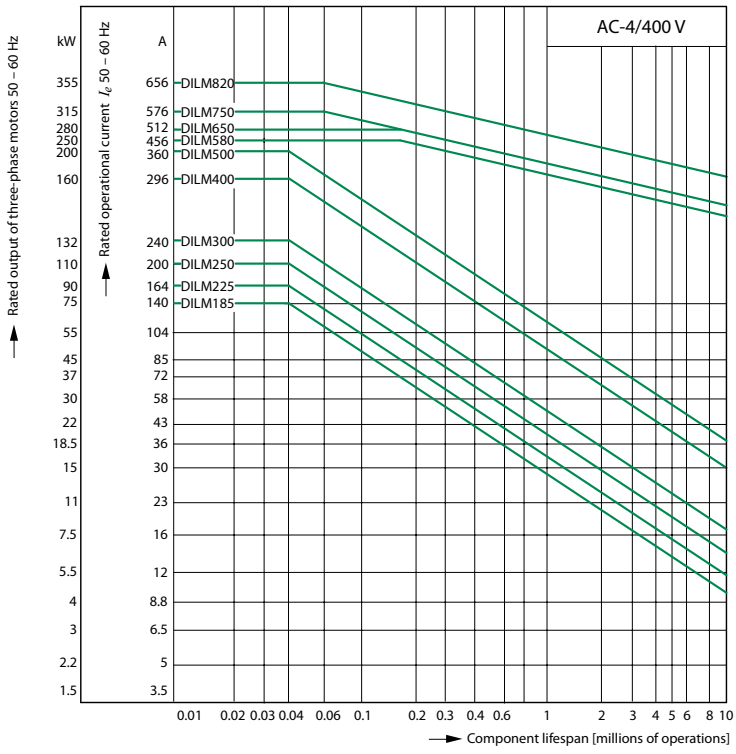
Utilization Category:
100% AC-3

Typical Applications:

Compressors	Elevators
Pumps	Escalators
Fans	Conveyor Belts
Hinged Flaps	Bucket-elevators
Mixers	Agitators
Centrifuges	Air-conditioning Systems

General drives in manufacturing and processing machines

AC-4 Extreme Switching Duty *(DILM185 – DILM820)*



Squirrel-Cage Motors

Operating Characteristics:
Jogging, plugging, reversing

Electrical Characteristics:
Make: up to 6 x rated motor current
Break: up to 6 x rated motor current

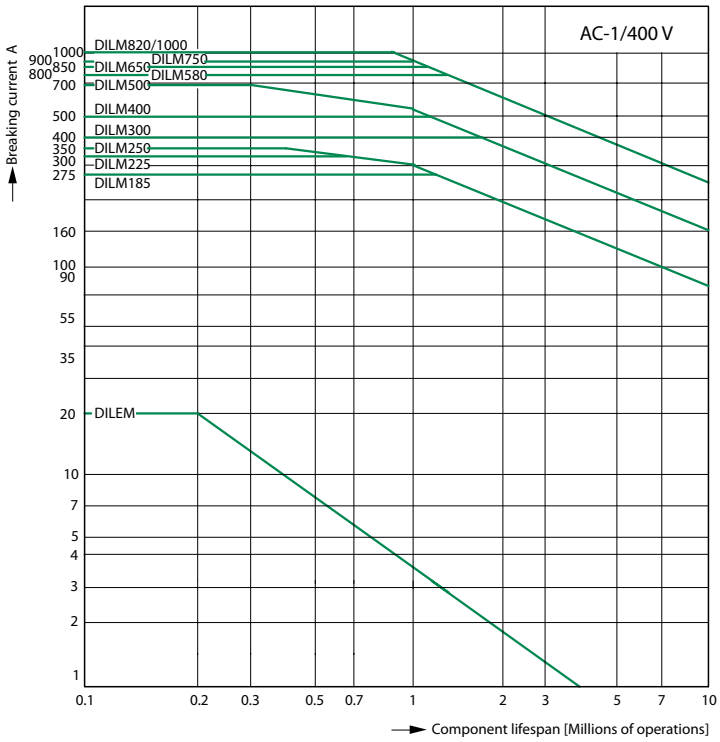
Utilitzation Category:
100% AC-4

Typical Applications:

Printing Presses	Wire Drawing
Centrifuges	

Special drives for manufacturing and processing machines

AC-1 Switching Duty for Non-Motor Loads *(DILEM – DILM1000)*



3-pole, 4-pole

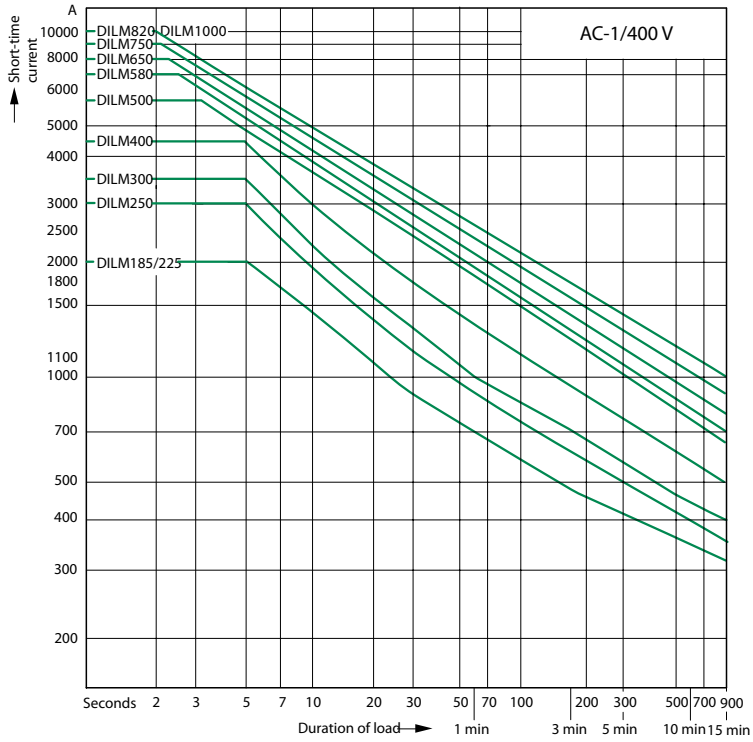
Operating Characteristics:
Non-inductive or slightly inductive loads

Electrical Characteristics:
Make: 1 x rated current
Break: 1 x rated current

Utilization Category:
100% AC-1

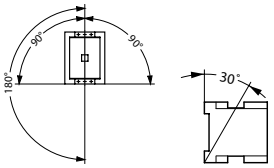
Typical Applications:
Electrical heaters

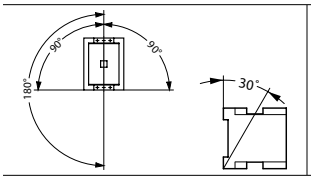
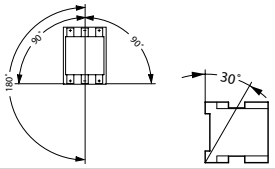
Short-Time Loading *(DILM185 – DILM1000)*



3-pole

Time interval between two loading cycles: 15 minutes

DILEM – DILM150 Contactors				DILEM(4)	DILMP20	DILM7	DILM9	DILM12	DILM17
General									
Standards						UL, CSA, IEC/EN60947, VDE 0660			
Lifespan, mechanical									
AC operated		Ops	[x 10⁶]	10	10	10	10	10	10
DC operated		Ops	[x 10⁶]	10	10	10	10	10	10
Max. Operating frequency, mechanical									
AC operated			[Ops/h]	9000	9000	9000	9000	9000	5000
DC operated			[Ops/h]	9000	9000	9000	9000	9000	5000
Climatic proofing									
Open						Damp heat constant to IEC60068-2-78			
Enclosed						Damp heat, cyclic, to IEC60068-2-30			
Ambient temperature									
Open			[C]	-25 °C...50 °C	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C
			[F]	*-13 °F...122 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*
Enclosed			[C]	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C
			[F]	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*
Storage			[C]	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C
			[F]	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*
Mounting position									
AC and DC				As required except vertical with terminals A1/A2 at the bottom					
Mechanical shock resistance (IEC/EN 60068-2-27)									
Half-sinusoidal shock, 10 ms									
Main Contacts	NO contacts	Make	[g]	10	10	10	10	10	10
	NO/NC contacts	Make/Break	[g]	20/20	–	–	–	–	–
Auxillary contacts	NO contacts	Make	[g]	–	7	7	7	7	7
	NC contacts	Break	[g]	–	5	5	5	5	5
Degree of protection				IP20	IP20	IP20	IP20	IP20	IP00
Protection against direct contact when actuated from front (IEC536)						Finger and-back-of-hand proof			
Weight									
AC			[kg]	0.2	0.23	0.23	0.23	0.23	0.42
DC			[kg]	0.2	0.28	0.28	0.28	0.28	0.48
Main terminals									
Wire Capacity		minimum	[AWG]	18 AWG (single or double)	18 AWG (single or double)	18 AWG (single or double)	18 AWG (single or double)	18 AWG (single or double)	14 AWG (single or double)
(Cu cable)		maximum	[AWG]	14 AWG (single or double)	14 AWG (single or double)	14 AWG (single or double)	14 AWG (single or double)	14 AWG (single or double)	6 AWG (single or double)
Main cable cross sections									
Solid			[mm²]	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-16) 2 x (0.75-10)
Flexible with ferrule			[mm²]	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-16) 2 x (0.75-10)
Flexible with cable lug			[mm²]	–	–	–	–	–	–
Stranded			[mm²]	–	–	–	–	–	1 x 16
Stranded with cable lug			[mm²]	–	–	–	–	–	–
Flat conductor Number of segments x width x thickness			[mm]	–	–	–	–	–	–
Bus bar		Width	[mm]	–	–	–	–	–	–
Main cable connection screw/bolt				M3.5	M3.5	M3.5	M3.5	M3.5	M5
Tightening torque			[Nm]	1.2	1.2	1.2	1.2	1.2	3

DILM25	DILM32	DILM40	DILM50	DILM65	DILM80	DILM95	DILM115	DILM150
UL, CSA, IEC/EN60947, VDE 0660								
10 10	10 10	10 10	10 10	10 10	10 10	10 10	10 10	10 10
5000 5000	5000 5000	5000 5000	5000 5000	5000 5000	3600 3600	3600 3600	3600 3600	3600 3600
Damp heat constant to IEC60068-2-78 Damp heat, cyclic, to IEC60068-2-30								
-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*
-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*
-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*
								
10 – 7 5	10 – 7 5	10 – 7 5	10 – 7 5	10 – 7 5	10 – 7 5	10 – 7 5	10 – 7 5	10 – 7 5
IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00	IP00
Finger and-back-of-hand proof								
0.42 0.48	0.42 0.48	0.9 1.1	0.9 1.1	0.9 1.1	2 2.1	2 2.1	2 2.1	2 2.1
14 AWG (single or double) 6 AWG (single or double)	14 AWG (single or double) 6 AWG (single or double)	14 AWG (single or double) 1 AWG (2 x 2 AWG)	14 AWG (single or double) 1 AWG (2 x 2 AWG)	14 AWG (single or double) 1 AWG (2 x 2 AWG)	10 AWG (single or double) 3/0 AWG (2 x 2/0 AWG)	10 AWG (single or double) 3/0 AWG (2 x 2/0 AWG)	8 AWG (single or double) 3/0 AWG (2 x 2/0 AWG)	8 AWG (single or double) 3/0 AWG (2 x 2/0 AWG)
1 x (0.75-16) 2 x (0.75-10)	1 x (0.75-16) 2 x (0.75-10)	1 x (2.5-16) 2 x (2.5-16)	1 x (2.5-16) 2 x (2.5-16)	1 x (2.5-16) 2 x (2.5-16)	–	–	–	–
1 x (0.75-16) 2 x (0.75-10)	1 x (0.75-16) 2 x (0.75-10)	1 x (2.5-35) 2 x (2.5-25)	1 x (2.5-35) 2 x (2.5-25)	1 x (2.5-35) 2 x (2.5-25)	1 x (10-95) 2 x (10-70)	1 x (10-95) 2 x (10-70)	1 x (10-95) 2 x (10-70)	1 x (10-95) 2 x (10-70)
–	–	–	–	–	–	–	–	–
1 x 16	1 x 16	1 x (16-50) 2 x (16-35)	1 x (16-50) 2 x (16-35)	1 x (16-50) 2 x (16-35)	1 x (16-120) 2 x (16-95)	1 x (16-120) 2 x (16-95)	1 x (16-120) 2 x (16-95)	1 x (16-120) 2 x (16-95)
–	–	–	–	–	–	–	–	–
–	–	12 x (6 x 9 x 0.8)	12 x (6 x 9 x 0.8)	12 x (6 x 9 x 0.8)	2 x (6 x 16 x 0.8)	2 x (6 x 16 x 0.8)	2 x (6 x 16 x 0.8)	2 x (6 x 16 x 0.8)
–	–	–	–	–	–	–	–	–
M5	M5	M6	M6	M6	M10	M10	M10	M10
3	3	3	3	3	14	14	14	14

DILEM – DILM150 Contactors					DILEM(4)	DILMP20	DILM7	DILM9	DILM12	DILM17
General *(continued)*										
Control circuit cable cross sections										
Solid				[mm²]	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4) 1 x (0.75-4)
Flexible with ferrule				[mm²]	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)
Solid or stranded				[AWG]	18-14	18-14	18-14	18-14	18-14	18-14
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
Tools										
Main cable	Posidriv screwdriver			[Size]	2	2	2	2	2	2
	Hexagon socket-head spanner	SW		[mm]	–	–	–	–	–	–
	Standard screw driver			[mm]	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
	Wrench			[mm]	–	–	–	–	–	–
Control cable	Posidrive screwdriver			[Size]	2	2	2	2	2	2
	Standard screwdriver			[mm]	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
Main Contacts										
Rated impulse withstand			U_{imp}	[VAC]	6000	8000	8000	8000	8000	8000
Overvoltage category/pollution degree					III/3	III/3	III/3	III/3	III/3	III/3
Rated insulation			U_i	[VAC]	690	690	690	690	690	690
Rated operational voltage			U_e	[VAC]	690	690	690	690	690	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1										
between coil and contacts				[VAC]	300	400	400	400	400	440
between contacts				[VAC]	300	400	400	400	400	440
Making capacity cos φ to IEC/NE 60-947 up to 690V				[A]	110	144	112	112	144	238
Breaking capacity, AC	200V			[A]	–	–	–	–	–	–
cos φ = 0.35	230V			[A]	–	–	–	–	–	–
50…60hz	200…230V			[A]	–	–	–	–	–	–
	220…230V			[A]	90	120	70	90	120	170
	380…400V			[A]	90	120	70	90	120	170
	460V			[A]	–	–	–	–	–	–
	500V			[A]	64	100	50	70	100	170
	575V			[A]	–	–	–	–	–	–
	660-690V			[A]	54	70	40	50	70	120
	1000V			[A]	–	–	–	–	–	–
Component lifespan										
AC-1 ; 400V			I_e	x 10^6	–	0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)
Maximum operating frequency										
AC-1 ; 400V			I_e	[Ops/h]	–	800	800	800	800	800
AC-3; 400V			I_e	[Ops/h]	–	1000	1000	1000	1000	800
AC-4; 400V			I_e	[Ops/h]	–	300	300	300	300	300
Refer to catalog supplement for frequency of operation graphs										
Short circuit rating										
Max. fuse	Type "2"	400V	gG/gL 500V	[A]	10	20	20	20	20	25
		690V	gG/gL 690V	[A]	–	20	16	16	20	25
		1000V	gG/gL 1000V	[A]	–	–	–	–	–	–
	Type "1"	400V	gG/gL 500V	[A]	20	35	35	35	35	63
		690V	gG/gL 690V	[A]	–	25	20	20	25	50
		1000V	gG/gL 1000V	[A]	–	–	–	–	–	–

DILM25	DILM32	DILM40	DILM50	DILM65	DILM80	DILM95	DILM115	DILM150
1 x (0.75-4) 1 x (0.75-4)	1 x (0.75-4) 1 x (0.75-4)	1 x (0.75-4) 1 x (0.75-4)	1 x (0.75-4) 1 x (0.75-4)	1 x (0.75-4) 1 x (0.75-4)	1 x (0.75-4) 2 x (0.75-4)	1 x (0.75-4) 2 x (0.75-4)	1 x (0.75-4) 2 x (0.75-4)	1 x (0.75-4) 2 x (0.75-4)
1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)
18-14	18-14	18-14	18-14	18-14	18-14	18-14	18-14	18-14
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	2	–	–	–	–
–	–	–	–	–	5	5	5	5
0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	–	–	–	–
–	–	–	–	–	–	–	–	–
2	2	2	2	2	2	2	2	2
0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
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	690	-	-	-	-
690	690	690	690	690	1000	1000	1000	1000
440 440	440 440	440 440	440 440	440 440	690 690	690 690	690 690	690 690
350	384	560	700	910	1120	1330	1610	2100
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
250	320	400	500	650	800	950	1150	1500
250	320	400	500	650	800	950	1150	1500
–	–	–	–	–	–	–	–	–
250	320	400	500	650	800	950	1150	1500
–	–	–	–	–	–	–	–	–
150	180	250	320	370	650	800	1100	1200
–	–	–	–	–	–	–	–	–
0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)	0,6 (AC1, 400V)	1 (AC1, 400V)	1 (AC1, 400V)
800	800	800	800	800	–	–	–	–
800	800	800	800	800	–	–	–	–
300	300	300	300	300	–	–	–	–
35	63	63	80	125	160	160	250	250
35	35	50	63	80	160	160	–	–
–	–	–	–	–	–	–	–	–
100	125	125	160	250	250	250	250	250
50	63	80	80	100	200	200	–	–
–	–	–	–	–	–	–	–	–

DILEM – DILM150 Contactors					DILEM(4)	DILMP20	DILM7	DILM9	DILM12	DILM17
UL/CSA Ratings										
Continuous current rating										
50/60Hz, 3 pole	Open			[A]	–	20	20	20	20	35
	Enclosed			[A]	–	18	18	18	18	32
Full load amperes										
1 - pole	115V			[A]	–	–	5.8	9.8	9.8	16
1 - pole	200V			[A]	–	–	7.9	9.2	11.5	13.8
1 - pole	230V			[A]	–	–	8	10	12	17
3 - pole	230V			[A]	–	–	6.8	9.6	9.6	15.2
3 - pole	480V			[A]	–	–	4.8	7.6	14	14
3 - pole	600V			[A]	–	–	6.1	9	11	17
Locked rotor amperes										
3 - pole	230V			[A]	–	–	50	64	64	92
3 - pole	480V			[A]	–	–	32	46	81	81
3 - pole	600V			[A]	–	–	36.8	50.8	64.8	93
Horsepower ratings (AC)										
Single phase	115VAC			[HP]	1/2	1/2	1/4	1/2	1	2
	200VAC			[HP]	1	1	3/4	1	2	2
	230VAC			[HP]	1 1/2	1 1/2	1	1 1/2	2	3
Three phase	200VAC			[HP]	2	3	1 1/2	3	3	7 1/2
	230VAC			[HP]	3	3	2	3	3	7 1/2
	460VAC			[HP]	5	5	3	5	10	10
	575VAC			[HP]	5	7 1/2	5	7 1/2	10	15
Horsepower ratings (DC)										
3 - pole break	125VDC		I_e	[HP]	–	3/4	1/4	1/2	3/4	2
	250VDC		I_e	[HP]	–	2	1	1 1/2	2	3
Lighting ratings										
3 - pole break	Electrical discharge lamps (Ballast)			[A]	–	–	20	20	20	40
3 - pole break	Incandescent lamps (Tungsten)			[A]	–	–	14	14	14	40
Resistance heating ratings										
3 - pole break				[A]	–	–	20	20	20	40
Refrigeration ratings										
3 - pole break				[A]	–	–	10	10	10	30
Elevator ratings										
	200V			[A]	–	–	3.7	7.8	7.8	11
	240V			[A]	–	–	6.0	6.8	9.6	9.6
	480V			[A]	–	–	3.4	4.8	11.0	11
	600V			[A]	–	–	3.9	6.1	9.0	11
	200V			[HP]	–	–	3/4	2	2	3
	240V			[HP]	–	–	1 1/2	2	3	3
	480V			[HP]	–	–	2	3	7 1/2	7 1/2
	600V			[HP]	–	–	3	5	7 1/2	10
IEC (AC) Application Ratings										
AC 1 - Duty										
	Open	40 °C / *104 °F*	I_{th}	[A]	22	22	22	22	22	40
Conventional free air		50 °C / *122 °F*	I_{th}	[A]	20	21	21	21	21	38
Thermal current,		55 °C / *137 °F*	I_{th}	[A]	19	21	21	21	21	37
3-pole, 50-60Hz		60 °C / *140 °F*	I_{th}	[A]	–	20	20	20	20	35
	Enclosed ❶		I_{th}	[A]	16	18	18	18	18	32
Conventional free air	Open ❶		I_{th}	[A]	50	50	50	50	50	85
Thermal current,										
1-pole, 50-60Hz	Enclosed ❶		I_{th}	[A]	40	45	45	45	45	80

❶ At maximum permissible ambient temperature.

DILM25	DILM32	DILM40	DILM50	DILM65	DILM80	DILM95	DILM115	DILM150
40	40	55	65	80	125	125	160	160
36	36	50	59	72	113	113	144	144
20	24	34	34	56	80	80	100	135
19.6	19.6	32.2	46	57.5	–	–	–	–
28	28	40	50	68	68	68	110	136
22	28	42	54	68	80	104	130	154
21	27	40	52	65	77	96	124	156
22	27	41	52	62	77	99	125	144
127	162	232	290	365	435	580	725	870
116	145	218	290	363	435	543	725	908
116	146	232	290	348	434	580	726	868
2	3	3	3	5	7 1/2	7 1/2	10	15
3	5	5	7 1/2	10	15	15	25	25
5	5	7 1/2	10	15	15	15	25	30
7 1/2	10	10	15	20	25	25	40	40
10	10	15	20	25	30	40	50	60
15	20	30	40	50	60	75	100	125
20	25	40	50	60	75	100	100	125
2	3	5	7 1/2	10	10	10	15	15
5	5	10	15	20	20	25	30	30
40	40	90	90	90	100	100	160	160
40	40	90	90	90	100	100	160	160
40	40	90	90	90	110	110	160	160
30	30	45	45	45	70	70	90	90
11	25.3	25.3	32.2	32.2	62.1	62.1	92	92
15.2	22	28	42	42	68	80	104	104
14	27	34	40	40	65	77	96	96
17	22	27	32	41	62	77	99	99
3	7 1/2	7 1/2	10	10	20	20	30	30
5	7 1/2	10	15	15	25	30	40	40
10	20	25	30	30	50	60	75	75
15	20	25	30	40	60	75	100	100
45	45	60	80	98	110	130	160	190
43	43	57	71	88	98	125	142	180
42	42	55	68	83	94	115	135	170
40	40	50	65	80	90	110	130	160
36	36	45	58	72	80	100	115	144
85	85	125	150	180	225	275	325	400
80	80	112	135	162	200	250	285	360

DILEM – DILM150 Contactors				DILEM(4)	DILMP20	DILM7	DILM9	DILM12	DILM17
IEC (AC) Application Ratings ***(continued)***									
AC 3-Duty									
Rated operational current (Open)	200V	I_e	[A]	–	–	–	–	–	–
50-60Hz ❶	220/230V	I_e	[A]	9	12	7	9	12	18
	230V	I_e	[A]	–	–	–	–	–	–
	240V	I_e	[A]	9	12	7	9	12	18
	380/400V	I_e	[A]	9	12	7	9	12	18
	415V	I_e	[A]	9	12	7	9	12	18
	440V	I_e	[A]	9	12	7	9	12	18
	460V	I_e	[A]	–	–	–	–	–	–
	500V	I_e	[A]	–	10	5	7	10	18
	550V	I_e	[A]	6.4	–	–	–	–	–
	575V	I_e	[A]	–	–	–	–	–	–
	660V	I_e	[A]	–	–	–	–	–	–
	660/690V	I_e	[A]	4.8	7	4	5	7	12
	1000V	I_e	[A]	–	–	–	–	–	–
Rated power	220/230V	P_n	[kW]	2.2	3.5	2.2	2.5	3.5	5
	240V	P_n	[kW]	2.5	4	2.2	3	4	5.5
	380/400V	P_n	[kW]	4	5.5	3	4	5.5	7.5
	415V	P_n	[kW]	4.3	7	4	5.5	7	10
	440V	P_n	[kW]	4.6	7.5	4.5	5.5	7.5	10.5
	500V	P_n	[kW]	4	7	3.5	4.5	7	12
	660/690V	P_n	[kW]	4	6.5	3.5	4.5	6.5	11
	1000V	P_n	[kW]	–	–	–	–	–	–
AC 4-Duty									
Rated operational current (Open)	200V	I_e	[A]	–	–	–	–	–	–
50-60Hz ❶	220/230V	I_e	[A]	6.6	7	5	6	7	10
	230V	I_e	[A]	–	–	–	–	–	–
	240V	I_e	[A]	6.6	7	5	6	7	10
	380/400V	I_e	[A]	6.6	7	5	6	7	10
	415V	I_e	[A]	6.6	7	5	6	7	10
	440V	I_e	[A]	6.6	7	5	6	7	10
	460V	I_e	[A]	–	–	–	–	–	–
	500V	I_e	[A]	5	6	4.5	5	6	10
	575V	I_e	[A]	–	–	–	–	–	–
	660V	I_e	[A]	–	–	–	–	–	–
	660/690V	I_e	[A]	3.4	5	4	4.5	5	8
	1000V	I_e	[A]	–	–	–	–	–	–
Rated power	220/230V	P_n	[kW]	1.5	2	1	1.5	2	2.5
	240V	P_n	[kW]	1.8	2.2	1.5	1.6	2.2	3
	380/400V	P_n	[kW]	3	3	2.2	2.5	3	4.5
	415V	P_n	[kW]	3.1	3.4	2.3	2.8	3.4	5
	440V	P_n	[kW]	3.3	3.6	2.4	3	3.6	5.5
	500V	P_n	[kW]	3	3.5	2.5	2.8	3.5	6
	660/690V	P_n	[kW]	3	4.4	2.9	3.6	4.4	6.5
	1000V	P_n	[kW]	–	–	–	–	–	–

❶ At maximum permissible ambient temperature.

DILM25	DILM32	DILM40	DILM50	DILM65	DILM80	DILM95	DILM115	DILM150
–	–	–	–	–	–	–	–	–
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
–	–	–	–	–	–	–	–	–
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	40	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
–	–	–	–	–	–	–	–	–
13	15	18	21	25	40	50	55	65
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
1	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
–	–	–	–	–	–	–	–	–

DILEM – DILM150 Contactors				DILEM(4)	DILMP20	DILM7	DILM9	DILM12	DILM17
IEC (DC) Applcation Ratings									
DC-1 Duty									
Rated operational current (Open) ❶	12VDC	I_e	[A]	20	–	–	–	–	–
	24VDC	I_e	[A]	20	–	–	–	–	–
	60VDC	I_e	[A]	20	20	20	20	20	35
	110VDC	I_e	[A]	20	20	20	20	20	35
	220VDC	I_e	[A]	20	15	15	15	15	35
	440VDC	I_e	[A]	–	1.3	1.3	1.3	1.3	2.9
DC-3 Duty									
Rated operational current (Open)	12VDC	I_e	[A]	8	–	–	–	–	–
	24VDC	I_e	[A]	8	–	–	–	–	–
	60VDC	I_e	[A]	4	20	20	20	20	35
	110VDC	I_e	[A]	3	20	20	20	20	35
	220VDC	I_e	[A]	1	1.5	1.5	1.5	1.5	10
	440VDC	I_e	[A]	–	0.2	0.2	0.2	0.2	0.6
DC-5 Duty									
Rated operational current (Open)	12VDC	I_e	[A]	2.5	–	–	–	–	–
	24VDC	I_e	[A]	2.5	–	–	–	–	–
	60VDC	I_e	[A]	2.5	20	20	20	20	35
	110VDC	I_e	[A]	1.5	20	20	20	20	35
	220VDC	I_e	[A]	0.3	1.5	1.5	1.5	1.5	10
	440VDC	I_e	[A]	–	0.2	0.2	0.2	0.2	0.6
Current Heat Loss (3 or 4 Pole)									
Current heat loss at I_{th}		I_{th}	[W]	2.7	4.7	4.7	4.7	4.7	7.3
Current heat loss at I_e to AC-3/400V		I_e	[W]	0.5	1.1	0.37	0.6	1.1	1.7
Impedence per pole			[mΩ]	–	2.5	2.5	2.5	2.5	2
Magnet System									
Voltage tolerance									
AC operated	Pick-up	x V coil	[x U_c]	–	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1
	Drop-out	x V coil	[x U_c]	–	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6
Dual Voltage coil 50Hz, 60Hz	Pick-up	x V coil	[x 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
or Single Voltage coil 50Hz	Drop-out	x V coil	[x U_c]	–	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6
Dual Frequency coil 50/60Hz	Pick-up	x V coil	[x U_c]	0.85-1.1	–	–	–	–	–
	Drop-out	x V coil	[x U_c]	–	–	–	–	–	–
DC operated ❷	Pick-up	x V coil	[x U_c]	0.8-1.1	0.8-1.1 ❸	0.8-1.1 ❸	0.8-1.1 ❸	0.8-1.1 ❸	0.7-1.2 ❹
	Drop-out	x V coil	[x U_c]	–	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 X U_c									
AC operated									
Dual Voltage coil 50Hz, 60Hz	Pick-up		[VA]	25	–	–	–	–	–
	Sealed		[VA/W]	4.6/1.3	–	–	–	–	–
Single Voltage coil 50Hz	Pick-up		[VA]	25	24	24	24	24	52
	Sealed		[VA/W]	4.6/1.3	3.4/1.2	3.4/1.2	3.4/1.2	3.4/1.2	7.1/2.1
Single Voltage coil 60Hz	Pick-up		[VA]	–	30	30	30	30	67
	Sealed		[VA/W]	–	4.4/1.4	4.4/1.4	4.4/1.4	4.4/1.4	8.7/2.6
Dual Frequency coil 50/60Hz	Pick-up		[VA]	29	25-27	25-27	25-27	25-27	58-62
	Sealed		[VA/W]	3.9/1.1	3.3-4.2 / 1.2-1.4	3.3-4.2 / 1.2-1.4	3.3-4.2 / 1.2-1.4	3.3-4.2 / 1.2-1.4	6.5-9.1 / 2-2.5
DC operated ❷	Pick-up		[W]	2.6	4.5	3	3	4.5	12 AT 24V
	Sealed		[W]	2.6	4.5	3	3	4.5	0.5 AT 24V
Duty factor DF			[% DF]	100	100	100	100	100	100

❶ At maximum permissible ambient temperature.

❷ True DC voltage or derived from a full wave 3-phase bridge rectifier or filtered 1-phase AC supply.

❸ At 24V: 0.7 . . . 1.3 without additional auxiliary contact modules and ambient temperature 40 °C

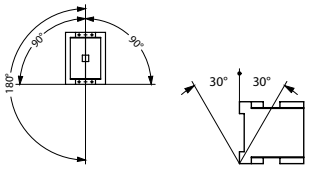
DILM25	DILM32	DILM40	DILM50	DILM65	DILM80	DILM95	DILM115	DILM150
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
40	40	50	60	72	110	110	160	160
40	40	50	50	72	110	110	160	160
40	40	45	45	65	70	70	90	90
2.9	2.9	2.9	2.9	2.9	4.5	4.5	4.5	4.5
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
35	40	50	60	72	110	110	160	160
35	40	50	50	72	110	110	160	160
10	25	25	25	35	35	35	40	40
0.6	0.6	0.6	0.6	0.6	1	1	1	1
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
35	40	50	60	72	110	110	160	160
35	40	50	50	72	110	110	160	160
10	10	25	25	35	35	35	40	40
0.6	0.6	0.6	0.6	0.6	1	1	1	1
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
2	2	1.5	1.5	1.5	0.6	0.6	0.6	0.6
0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1
0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3 to 0.6	0.3 to 0.6	0.25 to 0.6	0.25 to 0.6
0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1
0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
0.7-1.2 ❹	0.7-1.2 ❹	0.7-1.2 ❹	0.7-1.2 ❹	0.7-1.2 ❹	0.7 to 1.2 ❹	0.7 to 1.2 ❹	0.7 to 1.2 ❹	0.7 to 1.2 ❹
0.15-0.6	0.15-0.6	0.15-0.6	0.15-0.6	0.15-0.6	0.15 to 0.6	0.15 to 0.6	0.15 to 0.6	0.15 to 0.6
–	–	–	–	–	–	–	–	–
–	–	–	–	–	–	–	–	–
52	52	149	149	149	310	310	180	180
7.1/2.1	7.1/2.1	16/4.6	16/4.6	16/4.6	26/5.8	26/5.8	3.1/2.1	3.1/2.1
67	67	178	178	178	345	345	170	170
8.7/2.6	8.7/2.6	19/5.3	19/5.3	19/5.3	30/7.1	30/7.1	3.1/2.1	3.1/2.1
58-62	58-62	154- 168	154- 168	154- 168	328-372	328-372	170	170
6.5-9.1 / 2-2.5	6.5-9.1 / 2-2.5	14-22 / 4.3-5.3	14-22 / 4.3-5.3	14-22 / 4.3-5.3	22.6-37.1 / 6.1-7.5	22.6-37.1 / 6.1-7.5	3.1/2.1	3.1/2.1
12 AT 24V	12 AT 24V	12 AT 24V	12 AT 24V	12 AT 24V	90 AT 24V	90 AT 24V	149 AT 24V	149 AT 24V
0.5 AT 24V	0.5 AT 24V	0.5 AT 24V	0.5 AT 24V	0.5 AT 24V	1.3 AT 24V	1.3 AT 24V	2.1 AT 24V	2.1 AT 24V
100	100	100	100	100	100	100	100	100

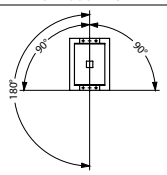
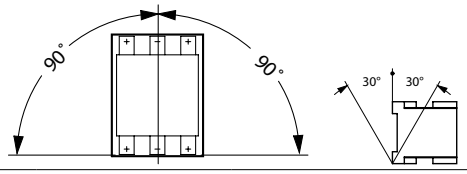
❹ RDC 24 (U_C min 24V DC, U_C max 27V DC)
RDC 60 (U_C min 48V DC, U_C max 60V DC)
RDC 130 (U_C min 110V DC, U_C max 130V DC)
RDC 240 (U_C min 200V DC, U_C max 240V DC)
i.e.: $U_C = 0.7 \times U_C$ min - $1.2 \times U_C$ max
$U_C = 0.7 \times 24V = 16.8$ V DC - $1.2 \times 27V = 32.4$V DC

DILEM – DILM150 Contactors				DILEM(4)	DILMP20	DILM7	DILM9	DILM12	DILM17
Magnet System ***(continued)***									
Switching times at 100% U_c (rated coil voltage) main contacts									
AC operated	Closing delay	Min./Max.	[ms]	14-27	15-21	15-21	15-21	15-21	16-22
	Opening delay	Min./Max.	[ms]	8-18	9-18	9-18	9-18	9-18	8-14
DC operated ❶	Closing delay	Min./Max.	[ms]	26-35	31	31	31	31	47
	Opening delay	Min./Max.	[ms]	15-25	12	12	12	12	30
Arcing time (AC)		Maximum	[ms]	12	10	10	10	10	10
Permissible residual current (with actuation of A11 by the electronics with 0 signal)			[mA]	–	–	–	–	–	–
Electromagnetic Compatibility (EC)									
Emitted interference						to EN 60947-1			
Noise immunity						to EN 60947-1			

❶ True DC voltage or derived from a full wave 3-phase bridge rectifier or filtered 1-phase AC supply.

DILM25	DILM32	DILM40	DILM50	DILM65	DILM80	DILM95	DILM115	DILM150
16-22	16-22	12-18	12-18	12-18	14-20	14-20	28 - 33	28 - 33
8-14	8-14	8-13	8-13	8-13	9-14	9-14	35 - 41	35 - 41
47	47	54	54	54	45	45	35	35
30	30	24	24	24	34	34	30	30
10	10	10	10	10	15	15	15	15
–	–	–	–	–	<1	<1	<1	<1
				to EN 60947-1				
				to EN 60947-1				

DILM185 – DILM1000 Contactors				DILM185	DILM225	DILM250	DILM300
General							
Standards					UL, CSA, IEC/EN60947, VDE 0660		
Lifespan, mechanical							
AC operated		0ps	[x 10^6]	10	10	10	7
DC operated		0ps	[x 10^6]	10	10	10	7
Max. Operating frequency, mechanical							
AC operated			0ps/h	3000	3000	3000	2000
DC operated			0ps/h	3000	3000	3000	2000
Climatic proofing							
Open					Damp heat constant to IEC60068-2-78		
Enclosed					Damp heat, cyclic to IEC 60068-2-30		
Ambient temperature							
Open			[C]	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C
			[F]	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*
Enclosed			[C]	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C
			[F]	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*
Storage			[C]	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C
			[F]	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*
Mounting position							
AC and DC							
Mechanical shock resistance (IEC/EN 60068-2-27)							
Half-sinusoidal shock, 10 ms							
Main Contacts	NO contacts	Make	[g]	10	10	10	10
	NO/NC contacts	Make/Break	[g]	–	–	–	–
Auxillary contacts	NO contacts	Make	[g]	10	10	10	10
	NC contacts	Break	[g]	8	8	8	8
Degree of protection				IP00	IP00	IP00	IP00
Protection against direct contact when actuated from front (IEC536)					Finger and-back-of-hand proof		
Weight							
AC			[kg]	6.5	6.5	6.5	8
DC			[kg]	6.5	6.5	6.5	8
Main terminals				DILM225-XKU-S	DILM225-XKU-S	DILM400-XKU-S	DILM400-XKU-S
Wire Capacity		minimum	[AWG]	6 AWG (single or double)	6 AWG (single or double)	4 AWG (single or double)	4 AWG (single or double)
(Cu cable)		maximum	[AWG]	350 MCM (2 x 300 MCM)	350 MCM (2 x 300 MCM)	600 MCM (2 x 500 MCM)	600 MCM (2 x 500 MCM)
Main cable cross sections							
Solid			[mm^2]	–	–	–	–
Flexible with ferrule			[mm^2]	–	–	–	–
Flexible with cable lug			[mm^2]	35-95	50-240	50-240	50-240
Stranded			[mm^2]	–	–	–	–
Stranded with cable lug			[mm^2]	50-120	70-240	70-240	70-240
Flat conductor Number of segments x width x thickness			[mm]	–	–	–	–
Bus bar		Width	[mm]	20	20	25	25
Main cable connection screw/bolt				M10	M10	M10	M10
Tightening torque			[Nm]	24	24	24	24
Control circuit cable cross sections							
Solid			[mm^2]	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)
Flexible with ferrule			[mm^2]	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)
Solid or stranded			[AWG]	2 x (18-12)	2 x (18-12)	2 x (18-12)	2 x (18-12)
Control circuit cable connection screw/bolt				M3.5	M3.5	M3.5	M3.5
Tightening torque			[Nm]	1.2	1.2	1.2	1.2

DILM400	DILM500	DILM580	DILM650	DILM750	DILM820	DILM1000
			UL, CSA, IEC/EN60947, VDE 0660			
7 7	5 5	5 5	5 5	5 5	5 5	5 5
2000 2000	2000 2000	1000 1000	1000 1000	1000 1000	1000 1000	1000 1000
			Damp heat constant to IEC60068-2-78 Damp heat, cyclic to IEC 60068-2-30			
-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*
-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*
-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*
						
10 – 10 8	10 – 10 8	10 – 10 8	10 – 10 8	10 – 10 8	10 – 10 8	10 – 10 8
IP00	IP00	IP00	IP00	IP00	IP00	IP00
			Finger and-back-of-hand proof			
8 8	8 8	15 15	15 15	15 15	15 15	15 15
DILM400-XKU-S	DILM500-XK-CNA	DILM650-XK-CNA	DILM650-XK-CNA	DILM820-XK-CNA	DILM820-XK-CNA	
4 AWG (single or double)	2 x 4 AWG	2 x 2 AWG	2 x 2 AWG	4 x 2 AWG	4 x 2 AWG	Terminal pad
600 MCM (2 x 500 MCM)	2 x 500 MCM	2x 500 MCM	2x 500 MCM	4 x 500 MCM	4 x 500 MCM	Terminal pad
–	–	–	–	–	–	–
–	–	–	–	–	–	–
50-240	50-240	50-240	50-240	50-240	50-240	50-240
–	–	–	–	–	–	–
70-240	70-240	70-240	70-240	70-240	70-240	70-240
–	–	–	–	–	–	–
25	30	50	50	60	60	60
M10	M10	M10	M10	M12	M12	M12
24	24	24	24	35	35	35
1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)
1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)	1 x (0.75-25) 2 x (0.75-2.5)
2 x (18-12)	2 x (18-12)	2 x (18-12)	2 x (18-12)	2 x (18-12)	2 x (18-12)	2 x (18-12)
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

DILM185 – DILM1000 Contactors						DILM185	DILM225	DILM250	DILM300
General *(continued)*									
Tools									
Main cable	Posidriv screwdriver				[Size]	–	–	–	–
	Hexagon socket-head spanner		SW		[mm]	–	–	–	–
	Standard screw driver				[mm]	–	–	–	–
	Wrench				[mm]	16	16	16	16
Control cable	Posidriv screwdriver				[Size]	2	2	2	2
	Standard screwdriver				[mm]	–	–	–	–
Main Contacts									
Rated impulse withstand				U_{imp}	[VAC]	8000	8000	8000	8000
Overvoltage category/pollution degree						III/3	III/3	III/3	III/3
Rated insulation				U_i	[VAC]	1000	1000	1000	1000
Rated operational voltage				U_e	[VAC]	1000	1000	1000	1000
Safe isolation to VDE 0106 Part 101 and Part 101/A1									
between coil and contacts					[VAC]	500	500	500	500
between contacts					[VAC]	500	500	500	500
Making capacity cos φ to IEC/NE 60-947 up to 690V					[A]	3000	3000	3000	5500
Breaking capacity, AC		200V			[A]	–	–	–	–
cos φ = 0.35		230V			[A]	–	–	–	–
50…60hz		200…230V			[A]	–	–	–	–
		220…230V			[A]	2500	2500	2500	5000
		380…400V			[A]	2500	2500	2500	5000
		460V			[A]	–	–	–	–
		500V			[A]	2500	2500	2500	5000
		575V			[A]	–	–	–	–
		660-690V			[A]	2500	2500	2500	5000
		1000V			[A]	760	760	760	950
Component lifespan									
AC-1 ; 400V				I_e	[Ops x 10^6]	Refer to the main catalog or catalog supplement for AC1 lifespan graphs.			
Maximum operating frequency									
AC-1 ; 400V				I_e	[Ops/h]	–	–	–	–
AC-3; 400V				I_e	[Ops/h]	–	–	–	–
AC-4; 400V				I_e	[Ops/h]	–	–	–	–
Refer to catalog supplement for frequency of operation graphs									
Short circuit rating									
Max. fuse	Type "2"	400V	gG/gL 500V		[A]	315	315	315	500
		690V	gG/gL 690V		[A]	315	315	315	500
		1000V	gG/gL 1000V		[A]	160	160	160	200
	Type "1"	400V	gG/gL 500V		[A]	400	400	400	630
		690V	gG/gL 690V		[A]	400	400	400	630
		1000V	gG/gL 1000V		[A]	200	200	200	250
UL/CSA Ratings									
Continuous current rating									
50/60Hz, 3 pole	Open				[A]	225	250	350	350
	Enclosed				[A]	203	225	315	315
IEC (AC) Application Ratings									
AC 1 - Duty									
	Open	40 °C / *104 °F*		I_{th}	[A]	337	386	429	490
Conventional free air		50 °C / *122 °F*		I_{th}	[A]	301	345	383	438
Thermal current,		55 °C / *137 °F*		I_{th}	[A]	287	329	366	418
3-pole, 50-60Hz		60 °C / *140 °F*		I_{th}	[A]	275	315	350	400
	Enclosed ❶			I_{th}	[A]	250	275	300	350
Conventional free air	Open ❶			I_{th}	[A]	685	785	875	1000
Thermal current,									
1-pole, 50-60Hz	Enclosed ❶			I_{th}	[A]	625	685	750	875

❶ At maximum permissible ambient temperature.

DILM400	DILM500	DILM580	DILM650	DILM750	DILM820	DILM1000
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
16	16	16	16	18	18	18
2	2	2	2	2	2	2
–	–	–	–	–	–	–
8000	8000	8000	8000	8000	8000	8000
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
500	500	500	500	500	500	500
500	500	500	500	500	500	500
5500	5500	7800	7800	9840	9840	9840
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
5000	5000	6500	6500	8200	8200	8200
5000	5000	6500	6500	8200	8200	8200
–	–	–	–	–	–	–
5000	5000	6500	6500	8200	8200	8200
–	–	–	–	–	–	–
5000	5000	6500	6500	8200	8200	8200
950	950	4350	4350	5800	5800	5800
Refer to the main catalog or catalog supplement for AC1 lifespan graphs.						
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
500	500	630	630	630	630	630
500	500	630	630	630	630	630
200	200	500	500	630	630	630
630	630	1000	1000	1200	1200	1200
630	630	1000	1000	1200	1200	1200
250	250	630	630	800	800	800
450	550	630	700	800	850	1000
405	495	567	630	720	765	900
612	857	980	1041	1102	1225	1225
548	767	876	931	986	1095	1095
522	731	836	888	940	1044	1044
500	700	800	850	900	1000	1000
450	650	–	–	–	–	–
1250	1750	2000	2125	2250	2500	2500
1125	1600	–	–	–	–	–

DILM185 – DILM1000 Contactors				DILM185	DILM225	DILM250	DILM300
IEC (AC) Application Ratings *(continued)*							
AC 3-Duty							
Rated operational current (Open)	200V	I_e	[A]	–	–	–	–
50-60Hz ❶	220/230V	I_e	[A]	185	225	250	300
	230V	I_e	[A]	–	–	–	–
	240V	I_e	[A]	185	225	250	300
	380/400V	I_e	[A]	185	225	250	300
	415V	I_e	[A]	185	225	250	300
	440V	I_e	[A]	185	225	250	300
	460V	I_e	[A]	–	–	–	–
	500V	I_e	[A]	185	225	250	300
	550V	I_e	[A]	–	–	–	–
	575V	I_e	[A]	–	–	–	–
	660V	I_e	[A]	–	–	–	–
	660/690V	I_e	[A]	185	225	250	300
	1000V	I_e	[A]	76	76	76	95
Rated power	220/230V	P_n	[kW]	55	70	75	90
	240V	P_n	[kW]	62	75	85	100
	380/400V	P_n	[kW]	90	110	132	160
	415V	P_n	[kW]	110	132	148	180
	440V	P_n	[kW]	115	142	157	190
	500V	P_n	[kW]	132	160	180	215
	660/690V	P_n	[kW]	175	215	240	286
	1000V	P_n	[kW]	108	108	108	132
AC 4-Duty							
Rated operational current (Open)	200V	I_e	[A]	–	–	–	–
50-60Hz ❶	220/230V	I_e	[A]	136	164	200	240
	230V	I_e	[A]	–	–	–	–
	240V	I_e	[A]	136	164	200	240
	380/400V	I_e	[A]	136	164	200	240
	415V	I_e	[A]	136	164	200	240
	440V	I_e	[A]	136	164	200	240
	460V	I_e	[A]	–	–	–	–
	500V	I_e	[A]	136	164	200	240
	575V	I_e	[A]	–	–	–	–
	660V	I_e	[A]	–	–	–	–
	660/690V	I_e	[A]	136	164	200	240
	1000V	I_e	[A]	76	76	76	95
Rated power	220/230V	P_n	[kW]	41	51	62	75
	240V	P_n	[kW]	45	54	68	82
	380/400V	P_n	[kW]	75	90	110	132
	415V	P_n	[kW]	80	96	117	142
	440V	P_n	[kW]	85	102	125	151
	500V	P_n	[kW]	96	116	143	172
	660/690V	P_n	[kW]	127	155	189	229
	1000V	P_n	[kW]	108	108	108	132

❶ At maximum permissible ambient temperature.

DILM400	DILM500	DILM580	DILM650	DILM750	DILM820	DILM1000
–	–	–	–	–	–	–
400	500	580	650	750	820	1000
–	–	–	–	–	–	–
400	500	580	650	750	820	1000
400	500	580	650	750	820	1000
400	500	580	650	750	820	1000
400	500	580	650	750	820	1000
–	–	–	–	–	–	–
400	500	580	650	750	820	1000
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
360	360	580	650	750	820	1000
95	95	435	435	580	580	700
125	155	185	205	240	260	315
132	170	200	225	260	285	340
200	250	315	355	400	450	560
240	300	348	390	455	500	610
255	345	370	420	480	525	650
290	360	420	470	550	600	730
344	344	560	630	720	750	1000
132	132	600	600	800	800	1000
–	–	–	–	–	–	–
296	360	456	512	576	656	800
–	–	–	–	–	–	–
296	360	456	512	576	656	800
296	360	456	512	576	656	800
296	360	456	512	576	656	800
296	360	456	512	576	656	800
–	–	–	–	–	–	–
296	360	456	512	576	656	800
–	–	–	–	–	–	–
–	–	–	–	–	–	–
296	296	456	512	576	656	800
95	95	348	348	464	464	700
92	112	143	161	181	209	260
101	122	156	176	200	228	280
160	200	250	280	315	355	450
176	216	274	307	346	394	490
186	229	290	326	367	418	520
214	260	330	370	417	474	590
283	344	440	494	556	633	780
132	132	509	509	678	678	1000

DILM185 – DILM1000 Contactors				DILM185	DILM225	DILM250	DILM300
IEC Capacitor Duty Ratings							
Individual compensation rated operational current of three - phase capacitors							
Open							
	up to 525V	I_e	[A]	220	220	220	307
	690V	I_e	[A]	133	133	133	177
Making capacity (I - peak value) without damping			[x I_e]	30	30	30	30
Component lifespan			[Ops x 10^6]	0.1	0.1	0.1	0.1
Max. operating frequency			[Ops/h]	200	200	200	200
IEC (DC) Applcation Ratings							
DC-1 Duty							
Rated operational current (Open) ❶	12VDC	I_e	[A]	–	–	–	–
	24VDC	I_e	[A]	–	–	–	–
	60VDC	I_e	[A]	300	300	300	400
	110VDC	I_e	[A]	300	300	300	400
	220VDC	I_e	[A]	300	300	300	400
	440VDC	I_e	[A]	11	11	11	11
DC-3 Duty							
Rated operational current (Open)	12VDC	I_e	[A]	–	–	–	–
	24VDC	I_e	[A]	–	–	–	–
	60VDC	I_e	[A]	300	300	300	400
	110VDC	I_e	[A]	300	300	300	400
	220VDC	I_e	[A]	300	300	300	400
	440VDC	I_e	[A]	–	–	–	–
DC-5 Duty							
Rated operational current (Open)	12VDC	I_e	[A]	–	–	–	–
	24VDC	I_e	[A]	–	–	–	–
	60VDC	I_e	[A]	300	300	300	400
	110VDC	I_e	[A]	300	300	300	400
	220VDC	I_e	[A]	300	300	300	400
	440VDC	I_e	[A]	–	–	–	–
Current Heat Loss (3 or 4 Pole)							
Current heat loss at I_{th}		I_{th}	[W]	79	108	95	123
Current heat loss at I_e to AC-3/400V		I_e	[W]	36	55	48	69
Impedence per pole			[mΩ]	–	–	–	–

❶ At maximum permissible ambient temperature.

DILM400	DILM500	DILM580	DILM650	DILM750	DILM820	DILM1000
307	307	463	463	463	463	463
177	177	265	265	265	265	265
30	30	30	30	30	30	30
0.1	0.1	0.1	0.1	0.1	0.1	0.1
200	200	200	200	200	200	200
–	–	–	–	–	–	–
–	–	–	–	–	–	–
400	400	–	–	–	–	–
400	400	–	–	–	–	–
400	400	–	–	–	–	–
11	11	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
400	400	–	–	–	–	–
400	400	–	–	–	–	–
400	400	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
–	–	–	–	–	–	–
400	400	–	–	–	–	–
400	400	–	–	–	–	–
400	400	–	–	–	–	–
–	–	–	–	–	–	–
188	236	227	257	288	355	355
120	120	120	150	200	239	355
–	–	–	–	–	–	–

DILM185 – DILM1000 Contactors				DILM185	DILM225	DILM250	DILM300
Magnet System							
Voltage tolerance							
AC operated	Pick-up	x V coil	[x U_c]	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max
	Drop-out	x V coil	[x U_c]	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max
Dual Voltage Coil 50Hz, 60Hz or Single Voltage Coil 50Hz	Pick-up	x V coil	[x U_c]	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max
	Drop-out	x V coil	[x U_c]	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max
Dual Frequency Coil 50/60Hz	Pick-up	x V coil	[x U_c]	–	–	–	–
	Drop-out	x V coil	[x U_c]	–	–	–	–
DC operated ❶	Pick-up	x V coil	[x U_c]	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max	0.7 x U_c min… 1.15 x U_c max
	Drop-out	x V coil	[x U_c]	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max	0.2 x U_c min… 0.6 U_c max
Power consumption of the coil in a cold state and 1.0 X U_c							
AC operated							
Dual Voltage Coil 50Hz, 60Hz	pick-up		[VA]	–	–	–	–
	sealed		[VA/W]	–	–	–	–
Single Voltage Coil 50Hz	pick-up		[VA]	380	380	450	450
	sealed		[VA/W]	4.3/3.3	4.3/3.3	4.3/3.3	4.3/3.3
Single Voltage Coil 60Hz	pick-up		[VA]	380	380	450	450
	sealed		[VA/W]	4.3/3.3	4.3/3.3	4.3/3.3	4.3/3.3
Dual Frequency Coil 50/60Hz	pick-up		[VA]	380	380	450	450
	sealed		[VA/W]	4.3/3.3	4.3/3.3	4.3/3.3	4.3/3.3
DC operated ❶	pick-up		[W]	170	170	170	350
	sealed		[W]	4.3	4.3	4.3	4.3
Duty factor DF			[% DF]	100	100	100	100
Switching times at 100% U_c (rated coil voltage) main contacts							
AC operated	Closing delay	Min./Max.	[ms]	< 100	< 100	< 80	< 80
	Opening delay	Min./Max.	[ms]	< 80	< 80	< 80	< 80
DC operated ❶	Closing delay	Min./Max.	[ms]	< 100	< 100	< 80	< 80
	Opening delay	Min./Max.	[ms]	< 80	< 80	< 80	< 80
Arcing time (AC)		Maximum	[ms]				
Permissible contact resistance (of the external command device with actuation of A11)			[mΩ]	<500	<500	<500	<500
Permissible residual current (with actuation of A11 by the electronics with 0 signal)			[mA]	<1	<1	<1	<1
SPS signal level (A3 - A4) to IEC/EN61131-2 (Type 2)		High	[V]	15	15	15	15
		Low	[V]	5	5	5	5
Electromagnetic Compatibility (EC)							
Emitted interference				This product is designed for operation in industrial environments (Environment 2). Usage in domestic areas (Environment 1) can cause radio frequency interference (RFI) so that additional interference to noise suppression measures must be provided.			
Noise immunity							

❶ True DC voltage or derived from a full wave 3-phase bridge rectifier or filtered 1-phase AC supply.

DILM400	DILM500	DILM580	DILM650	DILM750	DILM820	DILM1000
0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max
0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max
0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max
0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max
– –	– –	– –	– –	– –	– –	– –
0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max	0.7 x U_c min... 1.15 x U_c max
0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max	0.2 x U_c min... 0.6 U_c max
– –	– –	– –	– –	– –	– –	– –
450 4.3/3.3	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5
450 4.3/3.3	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5
450 4.3/3.3	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5	800 7.5/6.5
350 4.3	350 4.3	900 9.5	900 9.5	900 9.5	900 9.5	900 9.5
100	100	100	100	100	100	100
< 80 < 80 < 80 < 80	< 80 < 80 < 80 < 80	< 70 < 70 < 70 < 70	< 70 < 70 < 70 < 70	< 70 < 70 < 70 < 70	< 70 < 70 < 70 < 70	< 70 < 70 < 70 < 70
<500	<500	<500	<500	<500	<500	<500
<1	<1	<1	<1	<1	<1	<1
15 5	15 5	15 5	15 5	15 5	15 5	15 5

This product is designed for operation in industrial environments (Environment 2). Usage in domestic areas (Environment 1) can cause radio frequency interference (RFI) so that additional interference to noise suppression measures must be provided.

Auxiliary Contacts					...DILE(M)	DILA-XHI DILM32-XHI	DILM150-XHI	DILM1000-XHI
General								
UL/CSA Pilot duty rating				[AC]	–	A600 - 10A 600V general use	A600 - 15A 600V general use	A600 - 15A 600V general use
				[DC]	–		P300 - 1A 250V general use	
Positively guided contacts within an auxiliary contact module (to IEC60947-5-1 Annex L) does not apply to early make - late break contacts.					–	Yes	Yes	Yes
Break contact (not late break contact) suitable as a mirror contact (to IEC/EC 60947-4-1 Annex F)					–	Yes	Yes	Yes
Interlocked opposing contacts to ZH 1 / 457, including auxiliary contact module (not late break contact)					Yes	–	–	–
Rated Impulse withstand voltage			U_{imp}	[VAC]	6000	6000	6000	6000
Overvoltage category/pollution degree					III/3	III/3	III/3	III/3
Rated (insulation) voltage - IEC			U_i	[VAC]	690	690	690	690
Rated operational voltage - IEC			U_e	[VAC]	600	500	500	500
Safe isolation to VDE 0106 Part 101 and Part 101/A1								
Between coil and auxiliary contacts				[VAC]	300	400	440	440
Between the auxiliary contacts				[VAC}	300	400	440	440
IEC 974 Operating Current I_e								
AC-15		220...240V	I_e	[A]	6/4	–	–	–
		230V	I_e	[A]	–	6	6	6
		380...415V	I_e	[A]	3/2	4	4	4
		500V	I_e	[A]	1.5/1.5	1.5	1.5	1.5
DC-13 ❶	L/R ≤ 15 ms	24V	I_e	[A]	2.5	10	10	10
Single contact		60V	I_e	[A]	–	6	6	6
		110V	I_e	[A]	–	3	3	3
		220V	I_e	[A]	–	1	1	1
Contacts in series	2	60V	I_e	[A]	2.5	–	–	–
	3	110V	I_e	[A]	1.5	–	–	–
	3	220V	I_e	[A]	0.5	–	–	–
Conventional thermal current			I_{th}	[A]	10	10	15	15
Control circuit reliability ❷			Failure rate	[Ops]		Less than (1) one failure at 100 million operations		
Component lifespan at U_e = 230V, AC-15, 3A			Ops	[x 10^6]	0.2	1.3	1.3	1.3
DC-13 ❸ L/R = 50ms: 2 contacts in series at I_e=0.5A			Ops	[x 10^6]	0.15	–	–	–
Short-circuit rating without welding								
Maximum overcurrent protective device					PKZM0-4	–	–	–
Maximum fuse		500V		[A gG/gL]	6	10	16	16
		500V		[A fast]	10	–	–	–
Current heat loss at conventional free air thermal current								
Per contact			I_{th}	[W]	0.2	0.2	–	–

❶ Making and breaking conditions to DC-13, time L/R constant as stated.
❷ At U_e = 24V DC, U_{min} = 17V, I_{min} = 5.4mA
❸ True DC voltage or derived from a full wave 3-phase bridge rectifier or filtered 1-phase AC supply.

Parallel Links				DILM12-XP1	DILM32-XP1	DILM65-XP1	DILM150-XP1
General							
Terminal capacities							
Solid			[mm²]	1 - 16	16	16	–
Flexible with ferrule			[mm²]	1 X (0.5-25) 2 X (0.5-16)	1 X (16-35)	1 X (16-120)	–
Stranded			[mm²]	1 X (0.5-25) 2 X (0.5-16)	1 X (16-50)	1 X (16-120)	1 X (35-300) 2 X (35-120)
Flat conductor	Number of segments X width X thickness		[mm]	6 X 9 X 0.8	–	–	2 X (11 X 21 X 1)
Tightening torque			[Nm]	4	4	14	–
Tool							
Pozidriv screwdriver			[Size]	2	2	–	–
Hexagon socket-head spanner		SW	[mm]	–	–	5	6
Conventional thermal current							
3 - Pole		I_{th}	[A]	50	100	180	400
4 - Pole		I_{th}	[A]	60	–	–	–
Single phase rating AC-1 (single contactor - 3 poles in series) open style							
Voltage	220V,230V,240V		[KW]	13	18	26	47
	380V,400V,440V		[KW]	22	32	45	81
	660V,690V		[KW]	38	55	78	141
Rated operational current $I_e = I_{th}$ or I_{the}			[A]	60	88	125	225
Three - phase rating AC-1 (single contactor - 3 poles in parallel) open style							
Voltage	220V,230V,240V		[KW]	–	13	18	33
	380V,400V,440V		[KW]	–	22	31	56
	660V,690V		[KW]	–	38	54	98
Rated operational current $I_e = I_{th}$ or I_{the}			[A]	–	35	50	90
Three - phase rating AC-1 (three contactors - 3 poles in series) open style							
Voltage	220V,230V,240V		[KW]	22	32	45	81
	380V,400V,440V		[KW]	38	55	78	141
	660V,690V		[KW]	65	95	136	244
Rated operational current $I_e = I_{th}$ or I_{the}			[A]	60	88	125	225

Amplifier Module; Timing Relay				ETS4-VS3 Amplifier Module	DILM32-XTE Timing Relay
General					
Standards				UL, CSA, IEC/EN 60947, VDE 0660	UL, CSA, DIN EN61812, IEC/EN 60947, VDE 0660
Lifespan, mechanical					
AC operated		Ops	[x 10^6]	–	3
DC operated		Ops	[x 10^6]	30	3
Maximum operating frequency	220V 230V	Ops	[x 10^6]	72000	–
Climatic proofing				Damp heat, constant to IEC 60068-2-78; Damp heat, cyclical, to IEC 60068-2-30	
Ambient temperature					
Storage			[°C / °F]	10 °C / *50 °F*	-40…80 °C / *-40…176 °F*
Open			[°C / °F]	-25…60 °C / *-13…140 °F*	-25…60 °C / *-13…140 °F*
Enclosed			[°C / °F]	-25…45 °C / *-13…113 °F*	-25…40 °C / *-13…104 °F*
Mounting position				As required	As required, not suspended
Mechanical shock resistance (IEC/EN 60068-2-27)					
Half-sinusoidal shock 20 ms					
NO contact			[g]	10	–
Half-sinusoidal shock 10 ms					
NO contact			[g]	10	6
NC contact			[g]	8	6
Degree of protection				IP20	IP20
Protection against direct contact when actuated from the front (IEC 536)				Finger and back-of-hand proof	
Weight			[kg (oz)]	0.09 (3.17)	0.09 (3.17)
Terminal capacity					
Solid			[mm^2]	1 x (0.75 – 2.5) 2 x (0.75 – 2.5) ❶	1 x (0.75 – 2.5) 2 x (0.75 – 2.5)
Flexible with ferrule			[mm^2]	1 x (0.75 – 2.5) 2 x (0.75 – 1.5) ❶	1 x (0.75 – 1.5) 2 x (0.75 – 1.5)
Solid or stranded			[AWG]	16 – 14	18 – 14
Terminal screw				M3.5	M3.5
Tools					
Pozidrive screwdriver			[Size]	2	2
Standard screwdriver			[mm]	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
Tightening torque			[Nm]	1.2	1.2
Contacts					
Rated impulse withstand voltage		U_{imp}	[V AC]	6000	6000
Overvoltage category/pollution degree				III/3	III/3
Rated insulation voltage					
UL / CSA			[V AC]	250	–
IEC		U_i	[V AC]	440	600
Rated operational voltage		U_e	[V AC]	440	400

❶ Use only equal cross sections.

Amplifier Module; Timing Relay				ETS4-VS3 Amplifier Module	DILM32-XTE Timing Relay
Contacts *(continued)*					
Rated operational current					
UL / CSA (general purpose) B300		I_e	[A]	10	
AC-15	220/240 V	I_e	[A]	2	please inquire
	380/415 V	I_e	[A]	2	please inquire
DC-13 ❶					
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 in 100 million operations	–
Conventional thermal current		I_{th}	[A]	6	6
Component lifespan					
AC-15					
230V, I_e =0.1A		Ops	[x 10^6]	7	–
230V, I_e =1.2A		Ops	[x 10^6]	1	–
Short-circuit rating without welding					
Short-circuit protection, max-fuse					
500 V			[A gG/gL]	–	6
500 V			[A fast]	4	–
Magnet Systems					
Voltage tolerance					
AC operated	Pick-up		[x U_c]	–	0.8 – 1.1
DC operated	Pick-up		[x U_c]	0.85 – 1.2	0.7 – 1.2
Power consumption					
AC	Pick-up		[VA]	–	2
DC	Pick-up		[W]	–	1.8
DC operated	Pull in -Sealing		[W]	0.6	0
Duty factor			[% DF]	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			[Ops/h]	–	3600
6 A / 250V			[Ops/h]	9000	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		t_u	[ms]	–	10

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

NEMA/EEMAC Rated Contactors

					DILM-00N	DILM-0N
General						
Standards					UL, CSA, IEC/EN60947, VDE 0660	
Lifespan, mechanical						
AC operated			Operations	[x 10^6]	10	10
DC operated			Operations	[x 10^6]	10	10
Max. Operating frequency, mechanical						
AC operated				[Ops/h]	9000	9000
DC operated				[Ops/h]	9000	9000
Climatic proofing						
Open					Damp heat constant to IEC60068-2-78	
Enclosed					Damp heat, cyclic, to IEC60068-2-30	
Ambient temperature						
Open				[C] [F]	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*
Enclosed				[C] [F]	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*
Storage				[C] [F]	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*
Mounting position						
AC and DC						
Mechanical shock resistance (IEC/EN 60068-2-27)						
Half-sinusoidal shock, 10 ms						
Main Contacts	NO contacts	Make		[g]	10	10
	NO/NC contacts	Make/Break		[g]	–	–
Auxiliary contacts	NO contacts	Make		[g]	7	7
	NC contacts	Break		[g]	5	5
Degree of protection					IP20	IP20
Protection against direct contact when actuated from front (IEC536)					Finger and-back-of-hand proof	
Weight						
AC				[kg]	0.23	0.23
DC				[kg]	0.28	0.28
Main terminals						
Wire Capacity			minimum	[AWG]	18 AWG (single or double)	18 AWG (single or double)
(Cu cable)			maximum	[AWG]	14 AWG (single or double)	14 AWG (single or double)
Main cable cross sections						
Solid				[mm^2]	1 x (0.75-4.0)	1 x (0.75-4.0)
Flexible with ferrule				[mm^2]	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)
Flexible with cable lug				[mm^2]	–	–
Stranded				[mm^2]	–	–
Stranded with cable lug				[mm^2]	–	–
Flat conductor	Number of segments x width x thickness			[mm]	–	–
Bus bar			Width	[mm]	–	–
Main cable connection screw/bolt					M3.5	M3.5
Tightening torque				[Nm]	1.2	1.2
Control circuit cable cross sections						
Solid				[mm^2]	1 x (0.75-4.0) 2 x (0.75-2.5)	1 x (0.75-4.0) 2 x (0.75-2.5)
Flexible with ferrule				[mm^2]	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)
Solid or stranded				[AWG]	18-14	18-14
Control circuit cable connection screw/bolt					M3.5	M3.5
Tightening torque				[Nm]	1.2	1.2

DILM-1N	DILM-2N	DILM-3N	DILM-4N	DILM-5N
		UL, CSA, IEC/EN60947, VDE 0660		
10	10	10	10	10
10	10	10	10	10
5000	5000	3600	3600	3600
5000	5000	3600	3600	3600
		Damp heat constant to IEC60068-2-78 Damp heat, cyclic, to IEC60068-2-30		
-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*	-25 °C...60 °C *-13 °F...140 °F*
-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*	-25 °C...40 °C *-13 °F...104 °F*
-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*	-40 °C...80 °C *-40 °F...176 °F*
10	10	10	10	10
–	–	–	–	–
7	7	7	7	7
5	5	5	5	5
IP00	IP00	IP00	IP00	IP00
		Finger and-back-of-hand proof		
0.42	0.9	2	2	2
0.48	1.1	2.1	2.1	2.1
14 AWG (single or double) 6 AWG (single or double)	14 AWG (single or double) 1 AWG (2 x 2 AWG)	10 AWG (single or double) 3/0 AWG (2 x 2/0 AWG)	8 AWG (single or double) 3/0 AWG (2 x 2/0 AWG)	8 AWG (single or double) 3/0 AWG (2 x 2/0 AWG)
1 x (0.75-16)	1 x (2.5-16)	–	–	–
1 x (0.75-16) 2 x (0.75-10)	1 x (2.5-35) 2 x (2.5-25)	1 x (10-95) 2 x (10-70)	1 x (10-95) 2 x (10-70)	1 x (10-95) 2 x (10-70)
–	–	–	–	–
1 x 16	1 x (16-50) 2 x (16-35)	1 x (16-120) 2 x (16-95)	1 x (16-120) 2 x (16-95)	1 x (16-120) 2 x (16-95)
–	–	–	–	–
–	12 x (6 x 9 x 0.8)	2 x (6 x 16 x 0.8)	2 x (6 x 16 x 0.8)	2 x (6 x 16 x 0.8)
–	–	–	–	–
M5	M6	M10	M10	M10
3	3	14	14	14
1 x (0.75-4) 1 x (0.75-4)	1 x (0.75-4) 1 x (0.75-4)	1 x (0.75-4) 2 x (0.75-4)	1 x (0.75-4) 2 x (0.75-4)	1 x (0.75-4) 2 x (0.75-4)
1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)	1 x (0.75-2.5) 2 x (0.75-2.5)
18-14	18-14	18-14	18-14	18-14
M3.5	M3.5	M3.5	M3.5	M3.5
1.2	1.2	1.2	1.2	1.2

NEMA/EEMAC Rated Contactors					DILM-00N	DILM-0N
General *(continued)*						
Tools						
Main cable	Posidriv screwdriver			[Size]	2	2
	Hexagon socket-head spanner		SW	[mm]	–	–
	Standard screw driver			[mm]	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
	Wrench			[mm]	–	–
Control cable	Posidriv screwdriver			[Size]	2	2
	Standard screwdriver			[mm]	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
Main Contacts						
Rated impulse withstand			U_{imp}	[VAC]	8000	8000
Overvoltage category/pollution degree					III/3	III/3
Rated insulation			U_i	[VAC]	690	690
Rated operational voltage			U_e	[VAC]	690	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1						
Between coil and contacts				[VAC]	400	400
Between contacts				[VAC]	400	400
Making capacity cos φ to IEC/NE 60-947 up to 690V				[A]	112	144
Breaking capacity, AC		200V		[A]	–	–
cos φ = 0.35		230V		[A]	–	–
50…60hz		200…230V		[A]	–	–
		220…230V		[A]	90	120
		380…400V		[A]	90	120
		460V		[A]	–	–
		500V		[A]	70	100
		575V		[A]	–	–
		660…690V		[A]	50	70
		1000V		[A]	–	–
Component lifespan						
AC-1 ; 400V			I_e	[Ops x 10^6]	–	–
AC3, AC4** Refer main catalog or catalog supplement for lifespan graphs						
Maximum operating frequency						
AC-1 ; 400V			I_e	[Ops/h]	–	–
AC-3; 400V			I_e	[Ops/h]	3600	–
AC-4; 400V			I_e	[Ops/h]	–	–
Refer catalog supplement for frequency of operation graphs						
Short circuit rating						
Max. fuse	Type "2"	400V	gG/gL 500V	[A]	20	20
		690V	gG/gL 690V	[A]	16	20
		1000V	gG/gL 1000V	[A]	–	–
	Type "1"	400V	gG/gL 500V	[A]	35	35
		690V	gG/gL 690V	[A]	20	25
		1000V	gG/gL 1000V	[A]	–	–

DILM-1N	DILM-2N	DILM-3N	DILM-4N	DILM-5N
2	2	–	–	–
–	–	5	5	5
0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	–	–	–
–	–	–	–	–
2	2	2	2	2
0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
8000	8000	8000	8000	8000
III/3	III/3	III/3	III/3	III/3
690	690	–	–	–
690	690	1000	1000	1000
440	440	690	690	690
440	440	690	690	690
238	560	1120	1610	1610
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
170	400	800	1150	1150
170	400	800	1150	1150
–	–	–	–	–
170	400	800	1150	1150
–	–	–	–	–
120	250	650	1100	1100
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
–	–	–	–	–
25	63	160	250	250
25	50	160	–	–
–	–	–	–	–
63	125	250	250	250
50	80	200	–	–
–	–	–	–	–

NEMA/EEMAC Rated Contactors				DILM-00N	DILM-0N
UL/CSA Ratings					
Continuous current rating					
50/60Hz, 3 pole	Open		[A]	20	20
	Enclosed		[A]	18	18
Horsepower ratings (AC)					
Single phase	115VAC		[HP]	1/3	1
	200VAC		[HP]	–	–
	230VAC		[HP]	1	2
Three phase	200VAC		[HP]	1 1/2	3
	230VAC		[HP]	1 1/2	3
	460VAC		[HP]	2	5
	575VAC		[HP]	2	5
NEMA Size (non-joging duty)			[Size]	00	0
Current heat loss at I_{th}		I_{th}	[W]	4.7	4.7
Current heat loss at I_e to AC-3/400V		I_e	[W]	0.6	1.1
Impedence per pole			[mΩ]	2.5	2.5
Magnet System					
Voltage tolerance					
AC operated	Pick-up	x V coil	[x U_C]	0.8-1.1	0.8-1.1
	Drop-out	x V coil	[x U_C]	0.3-0.6	0.3-0.6
Dual Voltage Coil 50Hz, 60Hz	Pick-up	x V coil	[x U_C]	0.8-1.1	0.8-1.1
or Single Voltage Coil 50Hz	Drop-out	x V coil	[x U_C]	0.3-0.6	0.3-0.6
Dual Frequency Coil 50/60Hz	Pick-up	x V coil	[x U_C]	–	–
	Drop-out	x V coil	[x U_C]	–	–
DC operated ❶	Pick-up	x V coil	[x U_C]	0.8-1.1 ❷	0.8-1.1 ❷
	Drop-out	x V coil	[x U_C]	0.15-0.6	0.15-0.6
Power consumption of the coil in a cold state and 1.0 X U_C					
AC operated					
Dual Voltage Coil 50Hz, 60Hz	pick-up		[VA]	–	–
	sealed		[VA/W]	–	–
Single Voltage Coil 50Hz	pick-up		[VA]	24	24
	sealed		[VA/W]	3.4/1.2	3.4/1.2
Single Voltage Coil 60Hz	pick-up		[VA]	30	30
	sealed		[VA/W]	4.4/1.4	4.4/1.4
Dual Frequency Coil 50/60Hz	pick-up		[VA]	25-27	25-27
	sealed		[VA/W]	3.3-4.2 / 1.2-1.4	3.3-4.2 / 1.2-1.4
DC operated ❶	pick-up		[W]	3	4.5
	sealed		[W]	3	4.5
Duty factor DF			[% DF]	100	100
Switching times at 100% U_C (rated coil voltage) main contacts					
AC operated	Closing delay	Min./Max.	[ms]	15-21	15-21
	Opening delay	Min./Max.	[ms]	9-18	9-18
DC operated ❶	Closing delay	Min./Max.	[ms]	31	31
	Opening delay	Min./Max.	[ms]	12	12
Arcing time (AC)		Maximum	[ms]	10	10
Permissible residual current (with actuation of A11 by the electronics with no signal)			[mA]	–	–
Electromagnetic Compatibility (EC)					
Emitted interference				to EN 60947-1	
Noise immunity				to EN 60947-1	

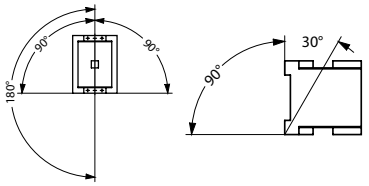
❶ True DC voltage or derived from a full wave 3-phase bridge rectifier or filtered 1-phase AC supply.

❷ At 24V: 0.7...1.3 without additional auxiliary contact modules and ambient temperature 40 °C

DILM-1N	DILM-2N	DILM-3N	DILM-4N	DILM-5N
35	55	125	160	160
32	50	113	144	144
2	3	7 1/2	–	–
–	–	–	–	–
3	7 1/2	15	–	–
7 1/2	10	25	40	75
7 1/2	15	30	50	100
10	25	50	100	200
10	25	50	100	200
1	2	3	4	5
7.3	11.3	14.6	30.4	30.4
1.7	7.2	11.5	23.8	23.8
2	1.5	0.6	0.6	0.6
0.8-1.1	0.8-1.1	0.8 to 1.1	0.8 to 1.1	0.8 to 1.1
0.3-0.6	0.3-0.6	0.3 to 0.6	0.25 to 0.6	0.25 to 0.6
0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1
0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6
–	–	–	–	–
–	–	–	–	–
0.7-1.2 ❸	0.7-1.2 ❸	0.7 to 1.2 ❸	0.7 to 1.2 ❸	0.7 to 1.2 ❸
0.15-0.6	0.15-0.6	0.15 to 0.6	0.15 to 0.6	0.15 to 0.6
–	–	–	–	–
–	–	–	–	–
52	149	310	180	180
7.1/2.1	16/4.6	26/5.8	3.1/2.1	3.1/2.1
67	178	345	170	170
8.7/2.6	19/5.3	30/7.1	3.1/2.1	3.1/2.1
58-62	154- 168	328-372	170	170
6.5-9.1 / 2-2.5	14-22 / 4.3-5.3	22.6-37.1 / 6.1-7.5	3.1/2.1	3.1/2.1
12 AT 24V	12 AT 24V	90 AT 24V	149 AT 24V	149 AT 24V
0.5 AT 24V	0.5 AT 24V	1.3 AT 24V	2.1 AT 24V	2.1 AT 24V
100	100	100	100	100
16-22	12-18	14-20	28 - 33	28 - 33
8-14	8-13	9-14	35 - 41	35 - 41
47	54	45	35	35
30	24	34	30	30
10	10	15	15	15
–	<1	<1	<1	<1
		to EN 60947-1		
		to EN 60947-1		

❸ RDC 24 (U_c min 24V DC, U_c max 27V DC)
RDC 60 (U_c min 48V DC, U_c max 60V DC)
RDC 130 (U_c min 110V DC, U_c max 130V DC)
RDC 240 (U_c min 200V DC, U_c max 240V DC)
i.e.: $U_c = 0.7 \times U_c$ min - $1.2 \times U_c$ max
$U_c = 0.7 \times 24V = 16.8$ V DC - $1.2 \times 27V = 32.4$V DC

DILK Capacitor Switching Contactors

				DILK12	DILK20	DILK25	DILK33	DILK50
General								
Standards				UL, CSA, IEC/EN60947, VDE 0660		UL, CSA, IEC/EN60947, VDE 0660		
Lifespan, mechanical								
AC operated	Ops		[x 10⁶]	10	10	10	10	10
DC operated	Ops		[x 10⁶]	10	10	10	10	10
Max. Operating frequency, mechanical								
AC operated			Ops/h	9000	5000	5000	5000	5000
DC operated			Ops/h	9000	5000	5000	5000	5000
Climatic proofing								
Open					Damp heat constant to IEC60068-2-78			
Enclosed					Damp heat, cyclic to IEC 60068-2-30			
Ambient temperature								
Open			[C]	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C	-25 °C...60 °C
			[F]	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*	*-13 °F...140 °F*
Enclosed			[C]	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C	-25 °C...40 °C
			[F]	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*	*-13 °F...104 °F*
Storage			[C]	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C	-40 °C...80 °C
			[F]	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*	*-40 °F...176 °F*
Mounting position								
AC and DC								
Mechanical shock resistance (IEC/EN 60068-2-27)								
Half-sinusoidal shock, 10 ms								
Main Contacts	NO contacts	Make	[g]	10	10	10	10	10
	NO/NC contacts	Make/Break	[g]	–	–	–	–	–
Auxiliary contacts	NO contacts	Make	[g]	7	7	7	7	7
	NC contacts	Break	[g]	5	5	5	5	5
Degree of protection				IP20	IP00	IP00	IP00	IP00
Protection against direct contact when actuated from front (IEC536)				Finger and-back-of-hand proof		Finger and-back-of-hand proof		
Weight								
AC			[kg]	0.41	0.55	0.55	1	1
DC			[kg]	–	–	–	–	–
Main terminals								
Wire Capacity		min	[AWG]	18 AWG (single or double)	14 AWG (single or double)	14 AWG (single or double)	14 AWG (single or double)	14 AWG (single or double)
(Cu cable)		max	[AWG]	14 AWG (single or double)	6 AWG (single or double)	6 AWG (single or double)	1 AWG (2 x 2 AWG)	1 AWG (2 x 2 AWG)
Main cable cross sections								
Solid			[mm²]	1 x (0.75-4.0)	1 x (0.75-16)	1 x (0.75-16)	1 x (2.5-16)	1 x (2.5-16)
				2 x (0.75-2.5)	2 x (0.75-10)	2 x (0.75-10)	2 x (2.5-16)	2 x (2.5-16)
Flexible with ferrule			[mm²]	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)
				2 x (0.75-2.5)	2 x (0.75-10)	2 x (0.75-10)	2 x (2.5-25)	2 x (2.5-25)
Flexible with cable lug			[mm²]	–	–	–	–	–
Stranded			[mm²]	–	1 x 16	1 x 16	1 x (16-50)	1 x (16-50)
				–	–	–	2 x (16-35)	2 x (16-35)
Stranded with cable lug			[mm²]	–	–	–	–	–
Flat conductor	Number of segments x width x thickness		[mm]	–	–	–	12 x (6 x 9 x 0.8)	12 x (6 x 9 x 0.8)
Bus bar		Width	[mm]	–	–	–	–	–
Main cable connection screw/bolt				M3.5	M5	M5	M6	M6
Tightening torque			[Nm]	1.2	3	3	3	3

DILK Capacitor Switching Contactors					DILK12	DILK20	DILK25	DILK33	DILK50
General ***(continued)***									
Control circuit cable cross sections									
Solid				[mm²]	1 x (0.75-4.0)	1 x (0.75-4)	1 x (0.75-4)	1 x (0.75-4)	1 x (0.75-4)
					2 x (0.75-2.5)	1 x (0.75-4)	1 x (0.75-4)	1 x (0.75-4)	1 x (0.75-4)
Flexible with ferrule				[mm²]	1 x (0.75-2.5)	1 x (0.75-2.5)	1 x (0.75-2.5)	1 x (0.75-2.5)	1 x (0.75-2.5)
					2 x (0.75-2.5)	2 x (0.75-2.5)	2 x (0.75-2.5)	2 x (0.75-2.5)	2 x (0.75-2.5)
Solid or stranded				[AWG]	18-14	18-14	18-14	18-14	18-14
Control circuit cable connection screw/bolt					M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque				[Nm]	1.2	1.2	1.2	1.2	1.2
Tools									
Main cable	Posidriv screwdriver			[Size]	2	2	2	2	2
	Hexagon socket-head spanner	SW		[mm]	–	–	–	–	–
	Standard screw driver			[mm]	0.8 x 5.5	0.8 x 5.5	0.8 x 5.5	0.8 x 5.5	0.8 x 5.5
					1 x 6	1 x 6	1 x 6	1 x 6	1 x 6
	Wrench			[mm]	–	–	–	–	–
Control cable	Posidriv screwdriver			[Size]	2	2	2	2	2
	Standard screwdriver			[mm]	0.8 x 5.5	0.8 x 5.5	0.8 x 5.5	0.8 x 5.5	0.8 x 5.5
					1 x 6	1 x 6	1 x 6	1 x 6	1 x 6
Main Contacts									
Rated impulse withstand			U_{imp}	[VAC]	8000	8000	8000	8000	8000
Overvoltage category/pollution degree					III/3	III/3	III/3	III/3	III/3
Rated insulation			U_i	[VAC]	690	690	690	690	690
Rated operational voltage			U_e	[VAC]	690	690	690	690	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1									
Between coil and contacts				[VAC]	400	440	440	440	440
Between contacts				[VAC]	400	440	440	440	440
Making capacity cos φ to IEC/NE 60-947 up to 690V				[A]	144	238	384	560	910
Breaking capacity, AC		200V		[A]	–	–	–	–	–
cos φ = 0.35		230V		[A]	–	–	–	–	–
50…60Hz		200…230V		[A]	–	–	–	–	–
		220…230V		[A]	120	170	320	400	650
		380…400V		[A]	120	170	320	400	650
		460V		[A]	–	–	–	–	–
		500V		[A]	100	170	320	400	650
		575V		[A]	–	–	–	–	–
		660…690V		[A]	70	120	180	250	370
		1000V		[A]	–	–	–	–	–
Short circuit rating									
Max. fuse	Type "2"	400V	gG/gL 500V	[A]	20	25	63	63	125
		690V	gG/gL 690V	[A]	20	25	35	50	80
		1000V	gG/gL 1000V	[A]	–	–	–	–	–
	Type "1"	400V	gG/gL 500V	[A]	35	63	125	125	250
		690V	gG/gL 690V	[A]	25	50	63	80	100
		1000V	gG/gL 1000V	[A]	–	–	–	–	–

DILK Capacitor Switching Contactors				DILK12	DILK20	DILK25	DILK33	DILK50
UL/CSA Ratings								
Continuous current rating								
50/60Hz, 3 pole	Open		[A]	20	35	40	55	80
	Enclosed		[A]	18	32	36	50	72
Capacitive switching ratings								
240V			[A]	18	28	37	48	72
480V			[A]	18	28	37	48	72
600V			[A]	18	28	37	48	72
240V			[KVAR]	7	12	15	20	30
480V			[KVAR]	15	20	30	40	60
600V			[KVAR]	15	30	40	50	75
IEC Capacitor Duty Ratings								
Group compensation motor rating of three - phase capacitors								
230V			[KVAR]	7.5	11	15	20	25
400V			[KVAR]	12.5	20	25	33.3	50
525V			[KVAR]	16.7	25	33.3	40	65
690V			[KVAR]	20	33.3	40	55	85
Group compensation rated operational current I_e of three-phase capacitors								
Open								
230V		I_e	[A]	18	29	38	50	72
400V		I_e	[A]	18	29	38	50	72
525V		I_e	[A]	18	29	38	50	72
690V		I_e	[A]	18	29	38	50	72
Enclosed								
230V		I_e	[A]	16	26	34	45	65
400V		I_e	[A]	16	26	34	45	65
525V		I_e	[A]	16	26	34	45	65
690V		I_e	[A]	16	26	34	45	65
Individual compensation rated operational current of three - phase capacitors								
Open								
up to 525V		I_e	[A]					
690V		I_e	[A]					
Making capacity (I - peak value) without damping			[x I_e]	180	180	180	180	180
Component lifespan	Ops		[x 10^6]	0.15	0.15	0.15	0.15	0.15
Max. operating frequency			[Ops/h]	120	120	120	120	120
Current Heat Loss (3 or 4 Pole)								
Current heat loss at I_{th}		I_{th}	[W]	4.7	7.3	12.1	11.3	28.8
Current heat loss at I_e to AC-3/400V		I_e	[W]	1.1	1.7	6.1	7.2	19
Impedance per pole			[mΩ]	2.5	2	2	1.5	1.5

DILK Capacitor Switching Contactors				DILK12	DILK20	DILK25	DILK33	DILK50
Magnet System								
Voltage tolerance								
AC operated	Pick-up	x V coil	[x U_c]	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1
	Drop-out	x V coil	[x U_c]	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6
Dual Voltage Coil 50Hz, 60Hz	Pick-up	x V coil	[x U_c]	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1	0.8-1.1
or Single Voltage Coil 50Hz	Drop-out	x V coil	[x U_c]	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6
Dual Frequency Coil 50/60Hz	Pick-up	x V coil	[x U_c]	–	–	–	–	–
	Drop-out	x V coil	[x U_c]	–	–	–	–	–
DC operated ❶	Pick-up	x V coil	[x U_c]	0.8-1.1 ❷	0.7-1.2 ❸	0.7-1.2 ❸	0.7-1.2 ❸	0.7-1.2 ❸
	Drop-out	x V coil	[x U_c]	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 X U_c								
AC operated								
Dual Voltage Coil 50Hz, 60Hz	pick-up		[VA]					
	sealed		[VA/W]					
Single Voltage Coil 50Hz	pick-up		[VA]	24	52	52	149	149
	sealed		[VA/W]	3.4/1.2	7.1/2.1	7.1/2.1	16/4.6	16/4.6
Single Voltage Coil 60Hz	pick-up		[VA]	30	67	67	178	178
	sealed		[VA/W]	4.4/1.4	8.7/2.6	8.7/2.6	19/5.3	19/5.3
Dual Frequency Coil 50/60Hz	pick-up		[VA]	25-27	58-62	58-62	154- 168	154- 168
	sealed		[VA/W]	3.3-4.2 / 1.2-1.4	6.5-9.1 / 2-2.5	6.5-9.1 / 2-2.5	14-22 / 4.3-5.3	14-22 / 4.3-5.3
DC operated ❶	pick-up		[W]	4.5	12 AT 24V	12 AT 24V	12 AT 24V	12 AT 24V
	sealed		[W]	4.5	0.5 AT 24V	0.5 AT 24V	0.5 AT 24V	0.5 AT 24V
Duty factor DF			[% DF]	100	100	100	100	100
Switching times at 100% U_c (rated coil voltage) main contacts								
AC operated	Closing delay	Min./Max.	[ms]	15-21	16-22	16-22	12-18	12-18
	Opening delay	Min./Max.	[ms]	9-18	8-14	8-14	8-13	8-13
DC operated ❶	Closing delay	Min./Max.	[ms]	31	47	47	54	54
	Opening delay	Min./Max.	[ms]	12	30	30	24	24
Arcing time (AC)		Maximum	[ms]	10	10	10	10	10
Electromagnetic Compatibility (EC)								
Emitted interference						to EN 60947-1		
Noise immunity						to EN 60947-1		

❶ True DC voltage or derived from a full wave 3-phase bridge rectifier or filtered 1-phase AC supply.

❷ At 24V: 0.7 . . . 1.3 without additional auxiliary contact modules and ambient temperature 40 °C

❸ RDC 24 (U_c min 24V DC, U_c max 27V DC)
RDC 60 (U_c min 48V DC, U_c max 60V DC)
RDC 130 (U_c min 110V DC, U_c max 130V DC)
RDC 240 (U_c min 200V DC, U_c max 240V DC)
i.e.: U_c = 0.7 x U_c min - 1.2 x U_c max
U_c = 0.7 x 24V = 16.8 V DC - 1.2 x 27V = 32.4V DC

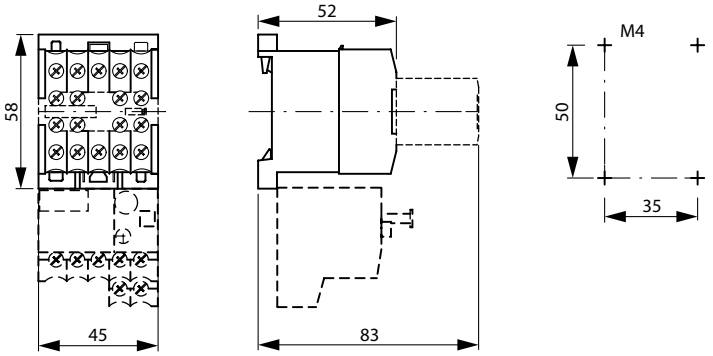
A

Contactors

Miniature Contactor

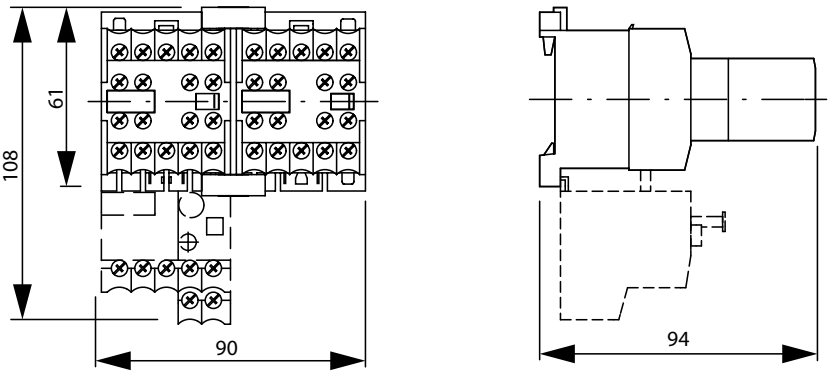
DILEM-...

Dimensions are in millimeters.
Not intended for manufacturing purposes.



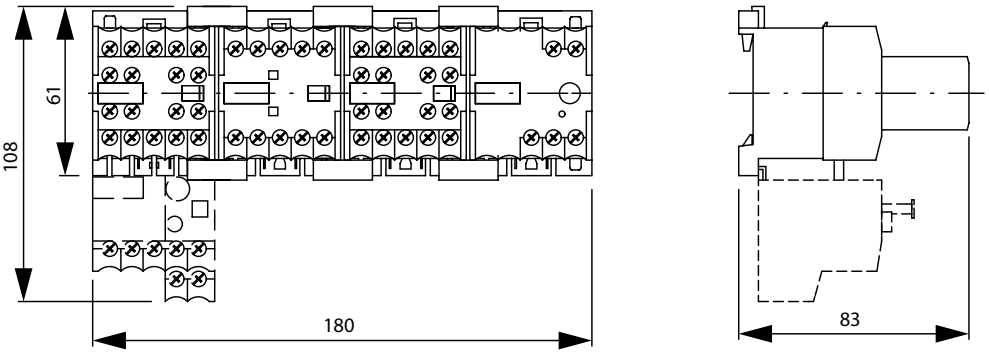
Reversing Combination

DIULEM...



Star-Delta Starter Combinations

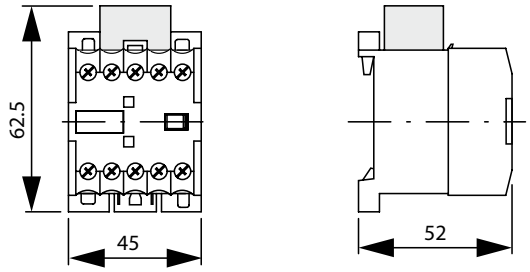
SDAINLEM...



Dimensions are in millimeters.
Not intended for manufacturing purposes.

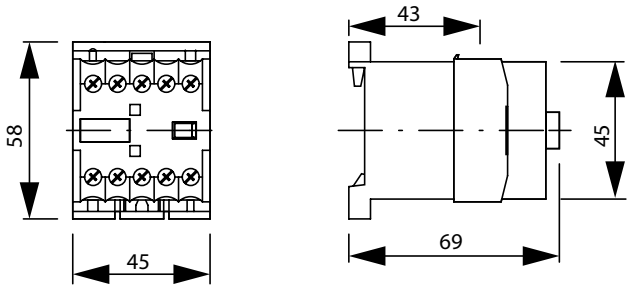
Miniature Contactor with Suppressor

RCDILE...; VGDILE...



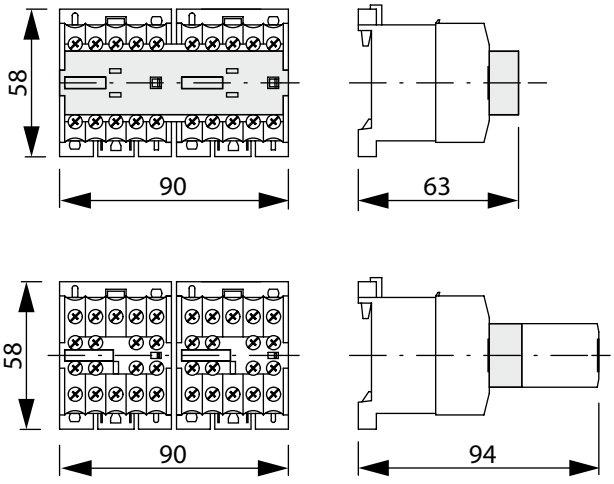
With Sealable Shroud

DILEM-...+HDILE



Mechanical Interlock

MVDILE



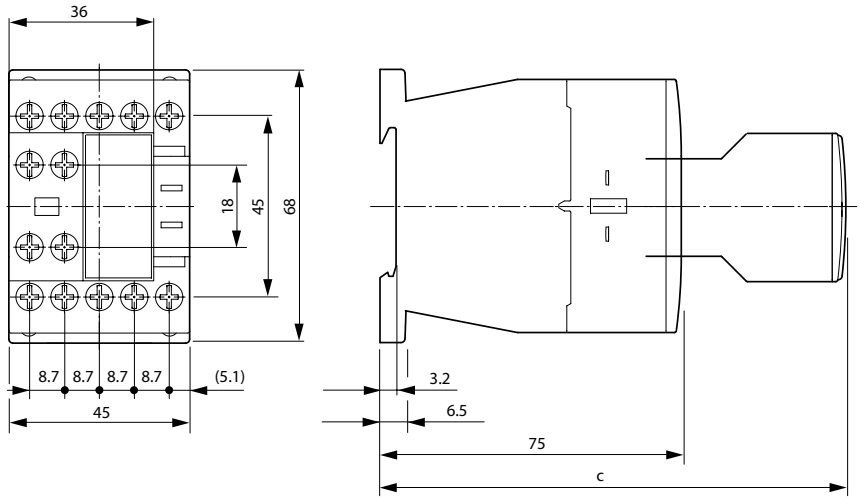
A

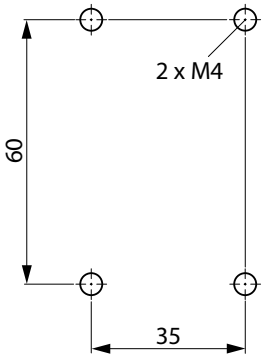
Contactors

Contactors *(low range)*

DILM7-...; DILM9-...; DILM12-...

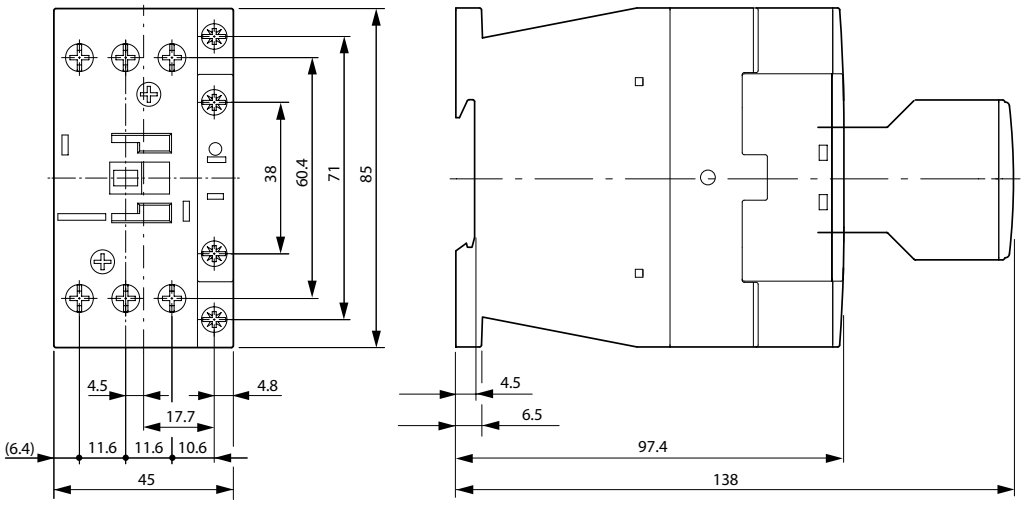
Dimensions are in millimeters.
Not intended for manufacturing purposes.

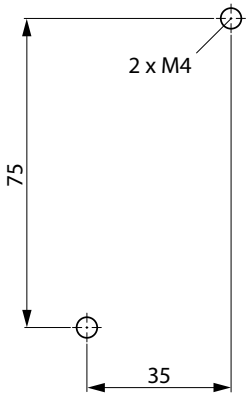




Auxiliary Contact	c
DILM32-XHI	117
DILA-XHI	117
DILA-XHI...T	125

DILM17-...; DILM25-...; DILM32-...





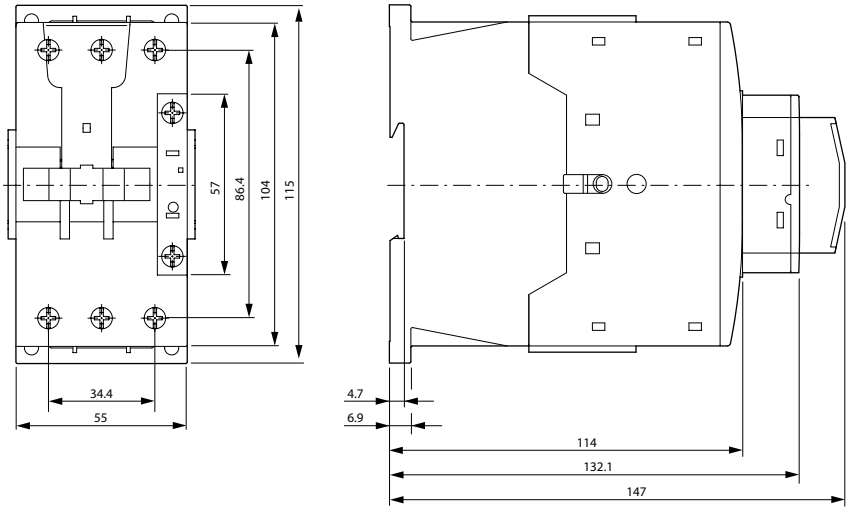
Sideways distance to grounding parts: 6mm

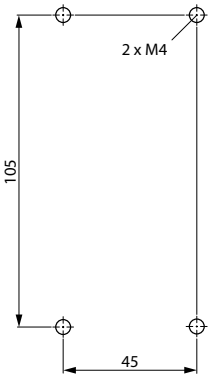
A
Contactors

Contactors *(low range)*

DILM40-...; DILM50-...; DILM65-...

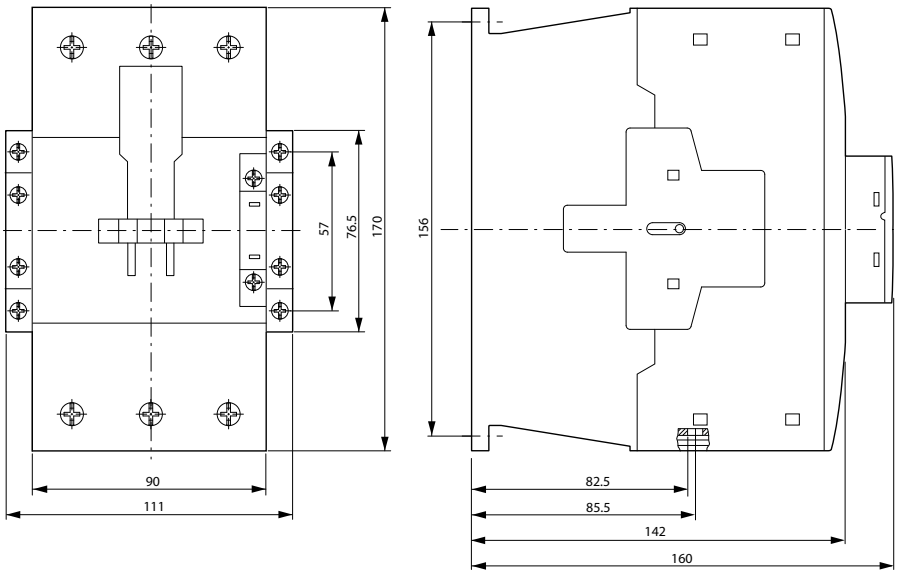
Dimensions are in millimeters.
Not intended for manufacturing purposes.

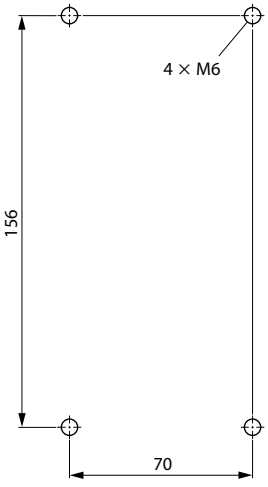




Sideways distance to grounding parts: 6mm

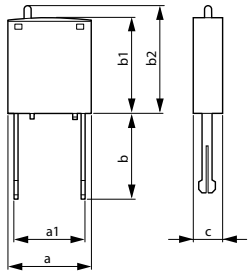
DILM80-...; DILM95-...; DILM115-...; DILM150-...





Sideways distance to grounding parts: 10mm

Plug-in Modules



dimension	DILM12-XSPR... DILM12-XSPV... DILM12-XSPI... DILM12-XSPD...	DILM32-XSPR... DILM32-XSPV... DILM32-XSPI...	DILM95-XSPR... DILM95-XSPV... DILM95-XSPI...
a	25	25	25
a1	9.2	9.2	20
b	25.9	16	18.5
b1	28	28	28
b2	≈32	≈32	≈32
c	9	9	9

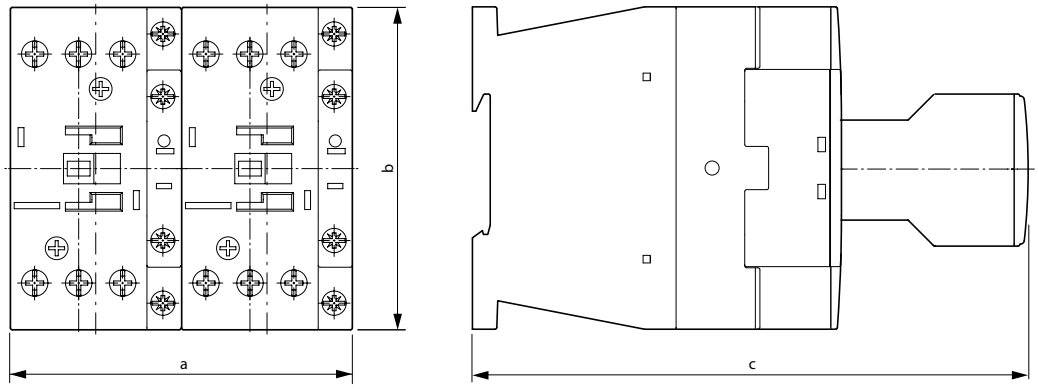
A

Contactors

Reversing Combinations

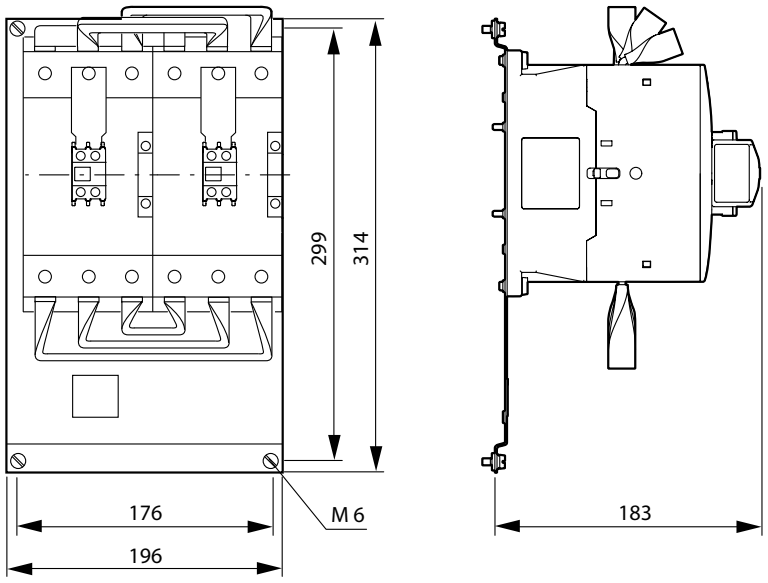
DIULM7-... – DIULM65-...

Dimensions are in millimeters.
Not intended for manufacturing purposes.



dimension	DIULM7/11 – DIULM12/21	DIULM17/21 – DIULM32/21	DIULM40/11 – DIULM65/11
a	90	90	110
b	68	85	115
c	117	138	147

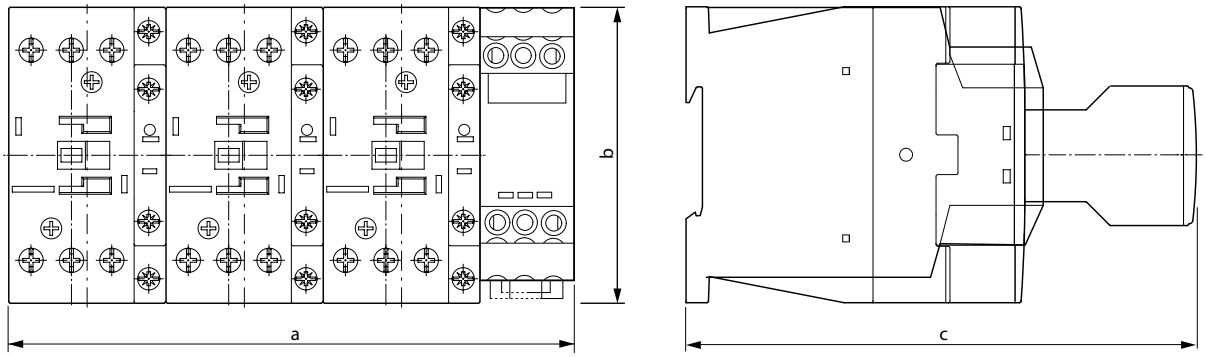
DIULM80-... – DIULM150-...



Star-Delta Combination

SDAINLM12-... – SDAINLM115-...

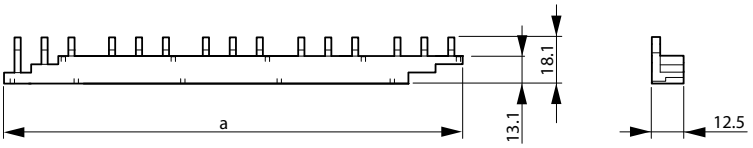
Dimensions are in millimeters.
Not intended for manufacturing purposes.



dimension	SDAINLM12 – SDAINLM22	SDAINLM30 – SDAINLM55	SDAINLM70 – SDAINLM115
a	158	158	188
b	68	85	115
c	117	138	147

Three-phase Commoning Link

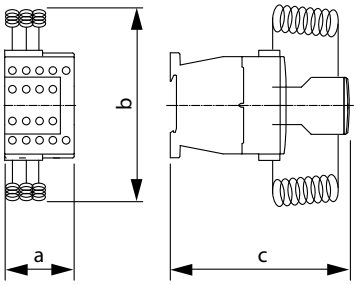
DILM12-XDSB...



	DILM12-XDSB0/3	DILM12-XDSB0/4	DILM12-XDSB0/5
a	112	157	202

Capacitor Switching Contactors

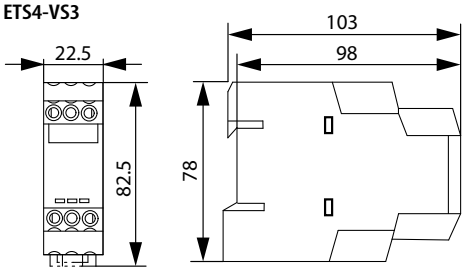
DILK12-... – DILK50-...



dimension	DILK	DILK20	DILK25	DILK33	DILK50
a	45	45	45	55	55
b	120	135	135	190	190
c	118	138	138	147	147
a1	35	35	35	45	45
b1	60	75	75	105	105
d	2 x M4	2 x M4	2 x M4	2 x M4	2 x M4

Amplifier Module

ETS4-VS3



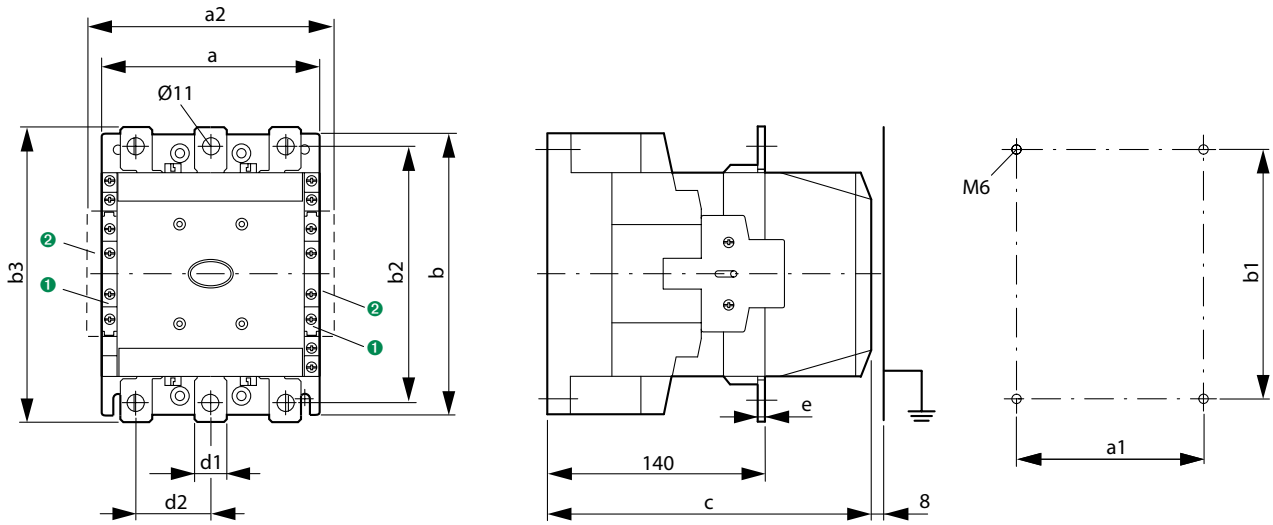
A

Contactors

Contactors *(high range)*

DILM185-... – DILM500-...

Dimensions are in millimeters.
Not intended for manufacturing purposes.



dimension	DILM185	DILM225	DILM250	DILM300	DILM400	DILM500
a	140	140	140	160	160	160
a1	120	120	120	130	130	130
a2	160	160	160	180	180	180
b	180	180	180	200	200	200
b1	160	160	160	180	180	180
b2	164	164	164	184	184	189
b3	189	189	189	209	209	219
d1	20	20	25	25	25	38
d2	48	48	48	48	48	57
e	5	5	5	6	6	6
c	208	208	208	216	216	216

❶ DILM1000-XHI...-SI
❷ DILM1000-XHI11-SA

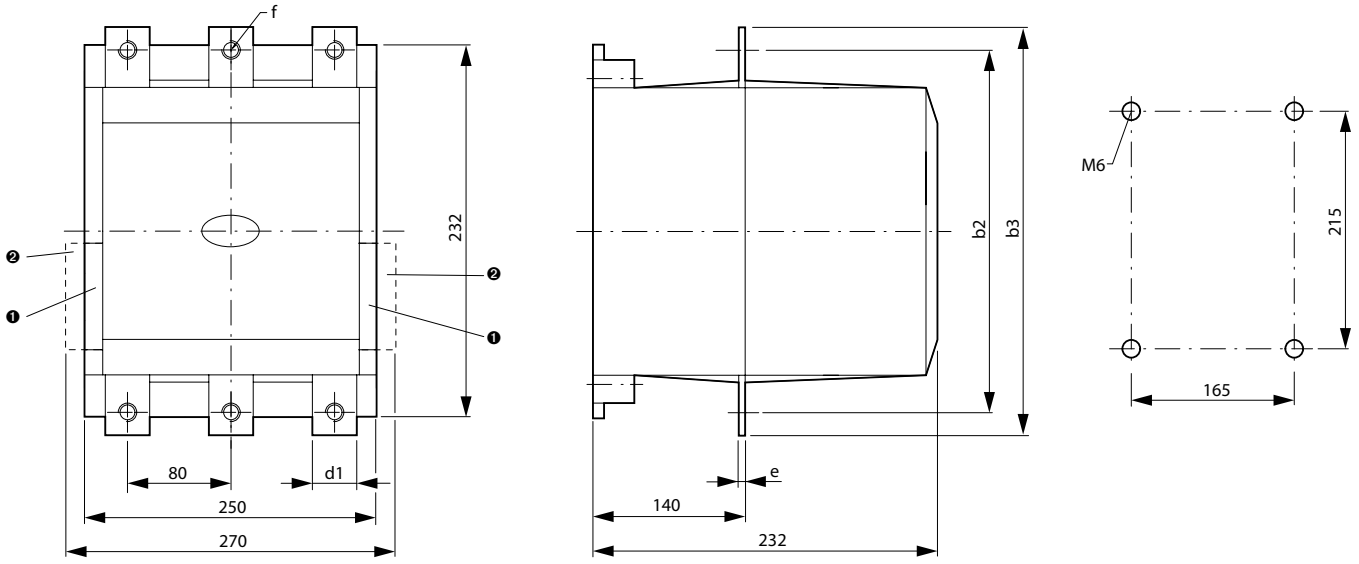
Contactors *(high range)*

DILM580-... – DILM1000-...

Dimensions are in millimeters.
Not intended for manufacturing purposes.

A

Contactors



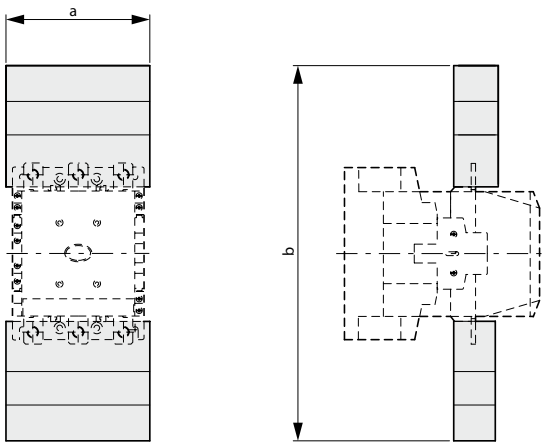
dimension	DILM580	DILM650	DILM750	DILM820	DILM1000
b2	256	256	256	256	256
b3	286	286	296	296	296
d1	35	35	45	45	45
e	6	6	6	6	10
f	11	11	13.5	13.5	13.5

❶ DILM1000-XHI...-SI
❷ DILM1000-XHI11-SA

Dimensions are in millimeters.
Not intended for manufacturing purposes.

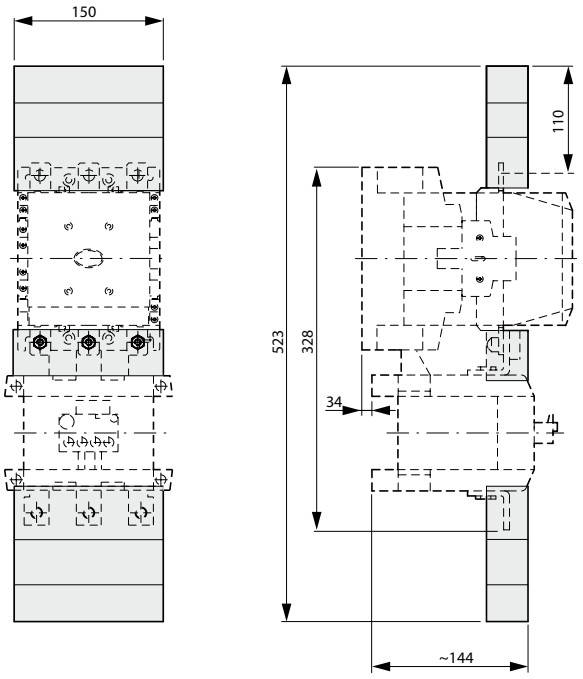
Contactor with Terminal Shroud

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



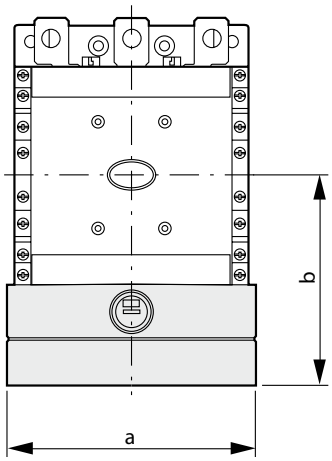
dimension	DILM185 DILM225 DILM250 DILM185-XP1	DILM300 DILM400	DILM500	DILM580 DILM650 DILM750 DILM820 DILM1000
a	150	150	174	236
b	384	404	426	506

DILM185-... – DILM250-... + Z5-.../FF250



Contactor with Start-Point Bridge + Terminal Shroud

DILM...-XS1

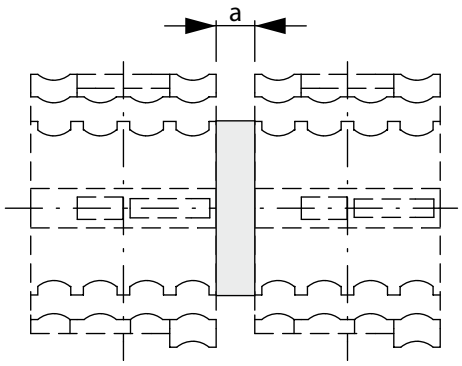


dimension	DILM185 – DILM250	DILM300 - DILM400	DILM500
a	150	150	176
b	127	137	146

Dimensions are in millimeters.
Not intended for manufacturing purposes.

Mechanical Interlock

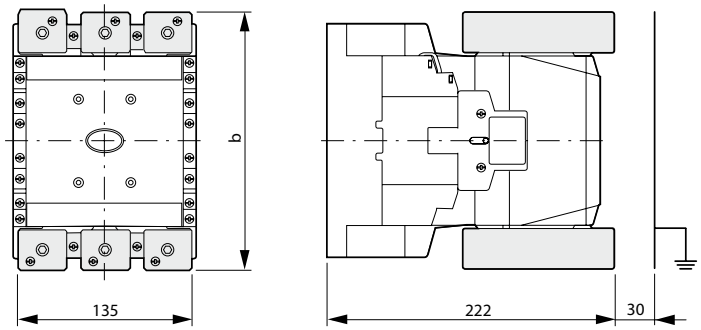
DILM500-XMV



dimension	DILM185 – DILM500
a	15

Cable Terminal Block

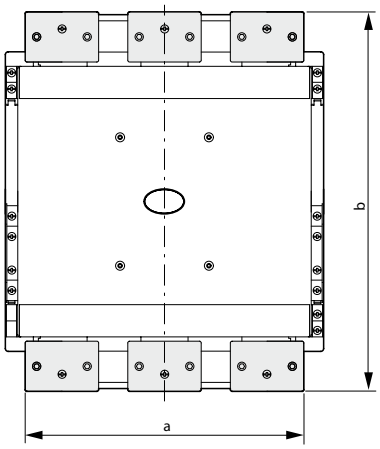
DILM...-XKU-S



dimension	DILM185 – DILM225	DILM250	DILM300 – DILM400
b	198	198	218

Flat Strip Conductor Terminals

DILM...-XKB-S



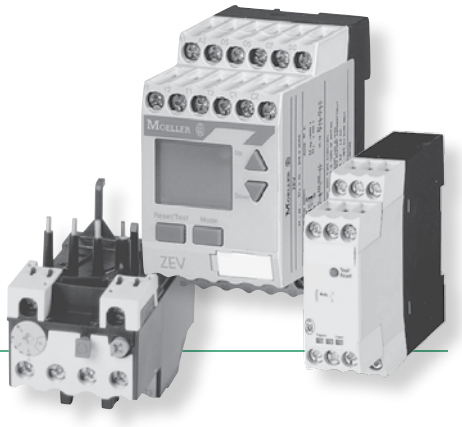
dimension	DILM500	DILM580-650	DILM750-820
a	171	218	231
b	295	295	310

motor protection

MOELLER

motor protection from Moeller

protection solutions to 820A



- > Superior IEC designs
- > Class 10 protection for modern motors
- > Ambient temperature compensation
- > Test / OFF button
- > Automatic & manual reset
- > Trip indication & trip-free release
- > Integrated NO & NC contact

Moeller offers an array of motor protection solutions, from the modest "ZE" bi-metallic thermal overload relay, to our advanced ZEV electronic motor protector. We also offer relays specifically built for motors with PTC thermistors.

Better protection

Modern motors are built with less metal, which means they dissipate less heat. This calls for the modern protection offered by IEC-style Class 10 overload relays... they trip in 10 seconds under locked rotor conditions. Most motor manufacturers today recommend this type of "close" protection. If your application calls for longer run-up times, our ZW7 current transformer relay or ZEV programmable relay are an ideal choice.

Many standard features

All Moeller overload relays come with a host of standard features including phase-failure sensitivity, temperature compensation, test / reset buttons and a trip-free release. This safety feature prevents the relay from being held closed during an actual overload.

Worldwide approvals

With the benefit of all major approvals, motor protection from Moeller can be used in virtually every country on the planet.

Feature Comparison	Protection Relay					
	ZE	ZB	Z5	ZW7	ZEV	EMT
Phase-failure sensitivity	✔	✔	✔		✔	✔
Temperature compensation	✔	✔	✔	✔	✔	N / A
Auxiliary switch 1 NO + 1 NC	✔	✔	✔	✔	✔	✔
Test / OFF button	✔	✔	✔	✔	✔	✔
Reset button manual / auto	✔	✔	✔	✔	✔	✔
Separate mounting		✔	✔	✔	✔	N / A
Protection for heavy starting duty				✔	✔	✔
Trip-free release	✔	✔	✔	✔	✔	N / A
LCD Display					✔	
LED Display						✔
Selectable trip time					✔	

✔ = standard features

Overload Protection Guide

Select Contactor

Locate contactor first, then scan down to determine appropriate overload relay

DILEM

DILM7
DILM9
DILM12

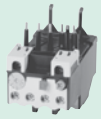
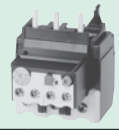
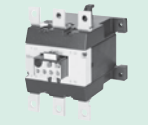
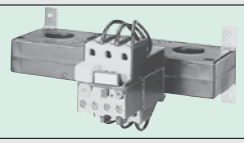
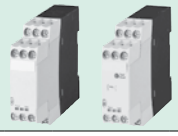
DILM17
DILM25
DILM32

DILM40
DILM50
DILM65

DILM80
DILM95
DILM150

DILM185
DILM225
DILM250

DILM300
to
DILM1000

Thermal Overload Relays							
ZE - Direct Mount 0.1 – 12A setting range *See page B5*							
ZB12 - Direct Mount 0.1 – 16A setting range *See page B6*							
ZB32 - Direct Mount 0.1 – 32A setting range *See page B6*							
ZB65 - Direct Mount 6 – 65A setting range *See page B7*							
ZB150 - Direct or Separate Mount 25 – 150A setting range *See page B7*							
Z5-.../FF250 - Direct or Separate Mount 50 – 250A setting range *See page B8*							
Current Transformer-operated Overload Relay							
ZW7-... ❶ 42 – 540A setting range *See page B9*							
Electronic Motor-protective Relay							
ZEV ❷ 1 – 820A setting range *See page B19*							
Thermistor Protection Relays							
EMT6(DB)K *See page B29*							

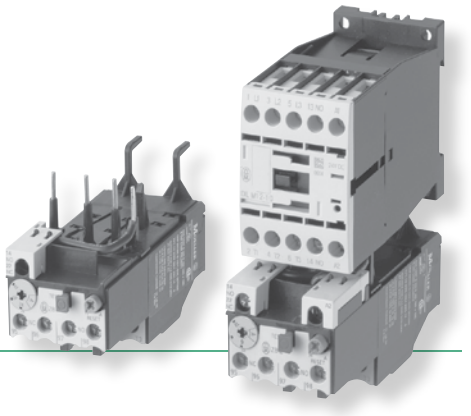
❶ Can only be used from DILM50 to DILM580.

❷ Can only be used up to DILM820.

NEW

thermal overload relays

reliable, consistent motor protection



- > Superior IEC designs
- > Class 10 protection for modern motors
- > Ambient temperature compensation
- > Test / OFF button
- > Automatic & manual reset
- > Trip indication & trip-free release
- > Integrated NO & NC contact

Thermal overload motor protection has come a long way from the eutectic alloy solder-pots and replaceable "heaters" of yesterday. Today's IEC-style relays from Moeller feature bimetal technology that is very consistent, reliable and economical.

A great combination

Most of our thermal relays are specifically designed to be close-coupled to a matching contactor. Virtually all ZE, ZB and Z5-series overloads, which cover the range from fractional to 250A, are direct mount designs. The resulting motor starters fit in an extremely compact footprint as narrow as 45mm. Protection for larger amp sizes is accomplished with Moeller's ZW7 overload relay with integrated current transformers.

Many standard features

Z-series overloads are the ideal choice In most industrial starting applications. Below 250A, all relays are Class 10, which means they trip within 10 seconds of a locked rotor condition. Many motor manufacturers agree that Class 10 devices offer superior protection against overloads, and also extend motor life by protecting winding insulation.

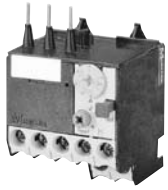
All of Moeller's thermal overload relays have ambient temperature compensation, automatic or manual reset and a test button. In addition, trip indication and a trip-free release are important safety features. Trip-free releases prevent the device from being held closed, even in the event of an overload.

Easy installation and operation

Once the overload is installed, a convenient dial adjustment is used to set the motor full load amps. Moeller's factory calibration assures that your motor investment is protected accurately.

- Designed for Moeller's DIL EM miniature contactors
- Class 10 overload; trip response from 2 to 10 seconds
- Ambient compensated, bimetallic overload tripping mechanism
- Phase failure sensitive to IEC/EN 60947
- Manual / Automatic reset button
- Built-in NO and NC auxiliary contacts

Direct Mount ZE Thermal Overload Relays for DILEM Miniature Contactors ❶

Overload Relay	Adjustable Setting Range (A)	Auxiliary Contacts		For use with...	Short-Circuit Protection (Max 600V AC)		Catalog Number	Price
		NO	NC		Fuses (A)	Circuit Breaker (A)		
	0.1 – 0.16	1	1	DILEM DIULEM	1	15	**ZE-0,16**	72
	0.16 – 0.24	1	1		1	15	**ZE-0,24**	72
	0.24 – 0.4	1	1		1	15	**ZE-0,4**	72
	0.4 – 0.6	1	1		1	15	**ZE-0,6**	72
	0.6 – 1	1	1		3	15	**ZE-1,0**	72
	1 – 1.6	1	1		6	15	**ZE-1,6**	72
	1.6 – 2.4	1	1		6	15	**ZE-2,4**	72
	2.4 – 4	1	1		15	15	**ZE-4**	72
	4 – 6	1	1		20	15	**ZE-6**	72
	6 – 9	1	1		35	15	**ZE-9**	72
	9 – 12	1	1		45	–	**ZE-12** ❷	72

❶ When using DILEM and ZE, a distance of at least 5mm should be maintained between overload relays mounted side-by-side.

❷ Max. 480V AC.

- Class 10 overload; trip response from 2 to 10 seconds
- Ambient compensated, bimetallic overload tripping mechanism
- Phase failure sensitive to IEC/EN 60947
- Manual / Automatic reset button
- Built-in NO and NC auxiliary contacts

Direct Mount ZB Thermal Overload Relays for DILM7 – DILM32 Contactors [1]

Overload Relay	Adjustable Setting Range (A)	Auxiliary Contacts NO	Auxiliary Contacts NC	For use with...	Short-Circuit Protection (Max 600V AC) Fuses (A)	Short-Circuit Protection (Max 600V AC) Circuit Breaker (A)	Catalog Number	Price
	0.1 – 0.16	1	1	DILM7 – DILM12 DIULM7 – DIULM12	1	25	**ZB12-0,16**	**72**
	0.16 – 0.24	1	1		1	25	**ZB12-0,24**	**72**
	0.24 – 0.4	1	1		1	25	**ZB12-0,4**	**72**
	0.4 – 0.6	1	1		1	25	**ZB12-0,6**	**72**
	0.6 – 1	1	1		3	25	**ZB12-1**	**72**
	1 – 1.6	1	1		6	25	**ZB12-1,6**	**72**
	1.6 – 2.4	1	1		6	25	**ZB12-2,4**	**72**
	2.4 – 4	1	1		15	25	**ZB12-4**	**72**
	4 – 6	1	1		20	25	**ZB12-6**	**72**
	6 – 10	1	1		40	25	**ZB12-10**	**72**
	9 – 12	1	1		60	30	**ZB12-12**	**72**
	12 – 16	1	1		60	30	**ZB12-16**	**72**
	0.1 – 0.16	1	1	DILM17 – DILM32 DIULM17 – DIULM32	1	25	**ZB32-0,16**	**76**
	0.16 – 0.24	1	1		1	25	**ZB32-0,24**	**76**
	0.24 – 0.4	1	1		1	25	**ZB32-0,4**	**76**
	0.4 – 0.6	1	1		1	25	**ZB32-0,6**	**76**
	0.6 – 1	1	1		3	25	**ZB32-1**	**76**
	1 – 1.6	1	1		6	25	**ZB32-1,6**	**76**
	1.6 – 2.4	1	1		6	25	**ZB32-2,4**	**76**
	2.4 – 4	1	1		15	25	**ZB32-4**	**76**
	4 – 6	1	1		20	25	**ZB32-6**	**76**
	6 – 10	1	1		40	25	**ZB32-10**	**76**
	10 – 16	1	1		60	30	**ZB32-16**	**76**
	16 – 24	1	1		90	30	**ZB32-24**	**76**
	24 – 32	1	1		125	40	**ZB32-32**	**96**

[1] ZB32 overload relays can be separately mounted using separate mounting base (catalog number: ZB32-XEZ).

- Class 10 overload; trip response from 2 to 10 seconds
- Ambient compensated, bimetallic overload tripping mechanism
- Phase failure sensitive to IEC/EN 60947
- Manual / Automatic reset button
- Built-in NO and NC auxiliary contacts

Direct Mount ZB Thermal Overload Relays for DILM40 – DILM150 Contactors [1]

Overload Relay	Adjustable Setting Range (A)	Auxiliary Contacts NO	Auxiliary Contacts NC	For use with...	Short-Circuit Protection (Max 600V AC) Fuses (A)	Short-Circuit Protection (Max 600V AC) Circuit Breaker (A)	Catalog Number	Price
	6 – 10	1	1	DILM40 – DILM65 DIULM40 – DIULM65	40	40	**ZB65-10**	**100**
	10 – 16	1	1		60	60	**ZB65-16**	**100**
	16 – 24	1	1		90	90	**ZB65-24**	**118**
	24 – 40	1	1		125	125	**ZB65-40**	**118**
	40 – 57	1	1		200	150	**ZB65-57**	**130**
	50 – 65	1	1		200	150	**ZB65-65**	**130**
	25 – 35	1	1	DILM80 – DILM150 DIULM80 – DIULM150	125	125	**ZB150-35**	**190**
	35 – 50	1	1		225	200	**ZB150-50**	**190**
	50 – 70	1	1		250	250	**ZB150-70**	**190**
	70 – 100	1	1		600 Class J	400	**ZB150-100**	**200**
	95 – 125	1	1		500 Class J	500	**ZB150-125**	**280**
	120 – 150	1	1		400 Class J	600	**ZB150-150**	**280**

Separate Mount ZB Thermal Overload Relays for DILM80 – DILM150 Contactors

Overload Relay	Adjustable Setting Range (A)	Auxiliary Contacts NO	Auxiliary Contacts NC	For use with...	Short-Circuit Protection (Max 600V AC) Fuses (A)	Short-Circuit Protection (Max 600V AC) Circuit Breaker (A)	Catalog Number	Price
	25 – 35	1	1	DILM80 – DILM150 DIULM80 – DIULM150	400 Class J	600	**ZB150-35/KK**	**200**
	35 – 50	1	1		400 Class J	600	**ZB150-50/KK**	**200**
	50 – 70	1	1		400 Class J	600	**ZB150-70/KK**	**200**
	70 – 100	1	1		400 Class J	600	**ZB150-100/KK**	**212**
	95 – 125	1	1		400 Class J	600	**ZB150-125/KK**	**300**
	120 – 150	1	1		400 Class J	600	**ZB150-150/KK**	**300**

[1] ZB65 overload relays can be separately mounted using separate mounting base (catalog number: ZB65-XEZ).

- Class 10 overload; trip response from 2 to 10 seconds
- Ambient compensated, bimetallic overload tripping mechanism
- Phase failure sensitive to IEC/EN 60947
- Manual / Automatic reset button
- Built-in NO and NC auxiliary contacts

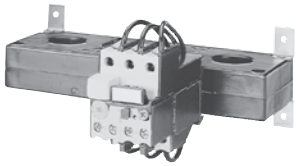
Direct or Separate Mount Z5 Thermal Overload Relays for DILM185 – DILM250 Contactors

Overload Relay	Adjustable Setting Range (A)	Auxiliary Contacts		For use with...	Short-Circuit Protection (Max 600V AC) ❶		Catalog Number	Price
		NO	NC		Fuses (A)	Circuit Breaker (A)		
	50 – 70	1	1	DILM185 – DILM250 DIULM185 – DIULM250	250	250	**Z5-70/FF250**	**380**
	70 – 100	1	1		400 class J	400	**Z5-100/FF250**	**395**
	95 – 125	1	1		500 class J	500	**Z5-125/FF250**	**395**
	120 – 160	1	1		600 class J	600	**Z5-160/FF250**	**410**
	160 – 220	1	1		800 class L	800	**Z5-220/FF250**	**430**
	200 – 250	1	1		700 class L	600	**Z5-250/FF250**	**430**

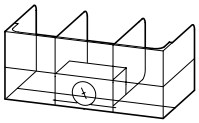
❶ When directly mounting device observe the maximum permissible fuse of the contactor.

- Designed for heavy-duty starting applications having long accelerating times
- Tripping time in 20 to 30 seconds under locked rotor conditions
- Ambient compensated, bimetallic overload tripping mechanism
- Manual / Automatic reset button
- Built-in NO and NC auxiliary contacts

Separate Mount ZW7 Current Transformer-Operated Thermal Overload Relays [1]

Overload Relay	Adjustable Setting Range (A)	Auxiliary Contacts		For use with...	Short-Circuit Protection		Catalog Number	Price
		NO	NC		Fuses (A)	Circuit Breaker (A)		
	42 – 63	1	1	DILM50 – DILM580 DIULM50 – DIULM580	As required by associated contactor. Overload relay is self-protecting.		ZW7-63	530
	60 – 90	1	1				ZW7-90	530
	85 – 125	1	1				ZW7-125	600
	110 – 160	1	1				ZW7-160	600
	160 – 240	1	1				ZW7-240	725
	190 – 290	1	1				ZW7-290	725
	270 – 400	1	1				ZW7-400	725
	360 – 540	1	1				ZW7-540	775

[1] The specified primary rated current applies to one cable loop; For lower rated motor current, loop cable several times (e.g., Looping cable twice with ZW7-63 will produce 21 ... 31.5 A rated motor current).

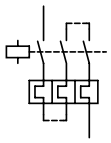
Accessory	Description	For use with...	Catalog Number	Price
Bases (for separate mounting)				
	For snap mounting on EN 50 022 DIN-rail or screw mounting.	ZB32	**ZB32-XEZ**	**18**
		ZB65	**ZB65-XEZ**	**30**
External Reset/Off Pushbuttons (for enclosed overload relays – mounting diameter: 22.5mm)				
	Actuator and Rod; 4X; IP 65 with: • Blue button plate with "R" inscription	ZE; Z5; ZW7 ZB12 – ZB150	**M22-DZ-B-X6**	**18**
	Actuator and Rod; 4X; IP 65 with: • Blue button plate with "RESET" inscription		**M22-DZ-B-GB14**	**18**
	Actuator and Rod; 4X; IP65 without button plate Order with button plate from selection below:	ZE; Z5; ZW7 ZB12 – ZB150	**M22-DZ-X**	**14**
	• Red button plate; blank	Order with M22-DZ-X above to complete accessory unit.	**M22-XD-R**	**3.10**
	• Red button plate with white circle inscription		**M22-XD-R-X0**	**4.30**
	• Red button plate with "STOP" inscription		**M22-XD-R-GB0**	**4.30**
Terminal Covers				
	Overload relays for separate mounting Possible configurations for cover combinations: Z5/FF250 -XHB Z5-.../FF250 Z5/FF250 -XHB	Z5-.../FF250	**Z5/FF250-XHB**	**60**
	Overload relay fitted directly to contactor Possible configurations for cover combinations: DIL M185/ 225/250 Z5/FF250 -XHB-Z Z5-.../FF250 Z5/FF250 -XHB	Direct mounting of Z5-.../FF250 to DILM185, DILM225, DILM250	**Z5/FF250-XHB-Z**	**40**
Set of box terminals				
	One set of three terminals. Wire size: #6 AWG – 350 MCM UL Recognized/CSA Approved.	Z5-.../FF250	**Z5-FF250-XK-CNA**	**125**

EC prototype test certification number:

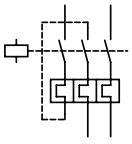
ZE	PTB 01 ATEX 3331
ZB	PTB 04 ATEX 3022
Z5	PTB 02 ATEX 3165

Protection of single-phase and DC current motors:

1-pole

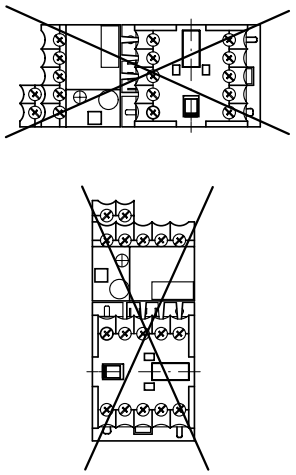


2-pole

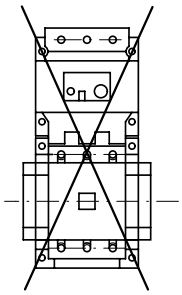


Cannot be Mounted in these positions:

ZE

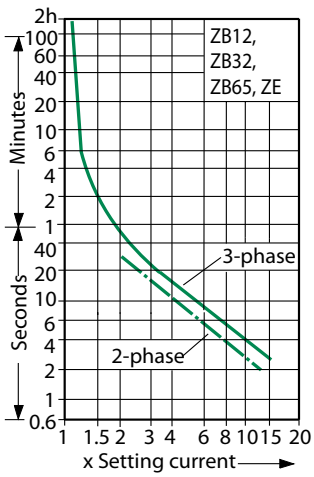


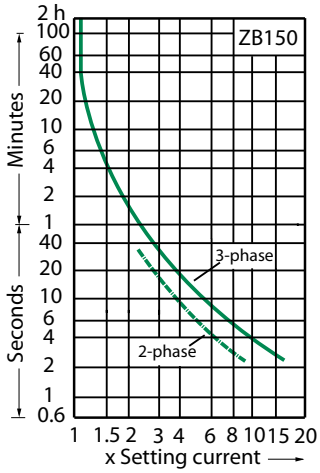
ZB12 – ZB150; Z5

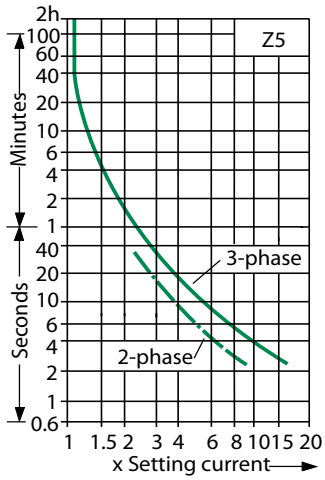


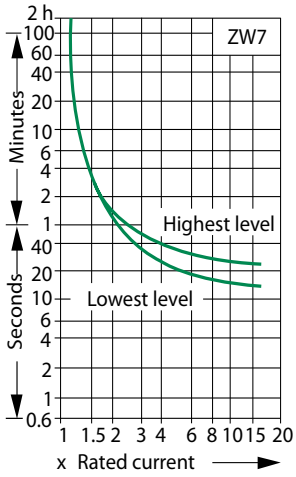
Tripping characteristics:

These tripping characteristics are mean values of the spread at 20 °C ambient temperature in a cold state. Tripping time depends on response current. With devices at operating temperature, the tripping time of the overload relay reduces to approximately 25% of the read off value.









Thermal Overload Relays			ZE	ZB12 ZB32	ZB65	ZB150	Z5-.../FF250	ZW7
General								
Standards					IEC/EN 60947, VDE 0660, UL, CSA			
Climatic proofing					Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature								
Open		[°C]	-25...50 °C	-25...55 °C	-25...55 °C	-25...55 °C	-25...50 °C	-25...50 °C
		[°F]	-13...122 °F	-13...131 °F	-13...131 °F	-13...131 °F	-13...122 °F	-13...122 °F
Enclosed		[°C]	-25...40 °C	-25...40 °C	-25...40 °C	-25...40 °C	-25...40 °C	-25...40 °C
		[°F]	-13...104 °F	-13...104 °F	-13...104 °F	-13...104 °F	-13...104 °F	-13...104 °F
Temperature compensation					Continuous			
Mounting position					See page 83			
Weight		[kg]	0.09	0.15	0.25	1.64	1.8	0.95
Mechanical shock resistance half-sinusoidal shock 10ms		[g]	10	10	10	10	10	10
Degree of protection			IP20	IP00	IP00	IP00	IP00	IP00
Protection against direct contact when actuated from front			Finger and back-of-hand proof	Finger and back-of-hand proof	Finger and back-of-hand proof	Finger and back-of-hand proof	With terminal cover	Finger and back-of-hand proof
Main Contacts								
Rated impulse withstand voltage	U_{imp}	[V AC]	6000	6000	6000	6000	8000	6000
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	1000	690
Rated operational voltage	U_e	[V AC]	690	690	690	690	1000	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1								
Between auxiliary contacts and main contacts		[V AC]	300	440	440	440	440	440
Between the main contacts		[V AC]	300	440	440	440	440	440
Overload relay setting range		[A]	0.1 – 9	0.1 – 32	6 – 65	25 – 150	50 – 250	40 – 540
Temperature compensation residual error > 20 °C		[% / K]	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25	≤ 0.25	–
Short-circuit protection rating maximum fuse			See page 77	See page 78	See page 79	See page 79	See page 80	❶
Current heat loss (3 conductors)								
Lower value of setting range		[W]	2.5	2.5	3	16	16	3
Upper value of setting range		[W]	6	6	7.5	28	28	10
Terminal capacity								
Solid		[mm²]	2 x (0.75 – 2.5)	2 x (1 – 6)	2 x (1 – 6)	2 x (4 – 16)	–	–
Flexible without ferrules		[mm²]	–	–	–	–	–	–
Flexible with ferrule		[mm²]	2 x (0.5 – 1.5)	2 x (1 – 4) 2 x (1 – 6) ❷	1 x 25 2 x (1 – 10) ❸	1 x (4 – 70) 2 x (4 – 50)	–	–
Stranded		[mm²]	–	–	1 x 35 2 x 10	–	–	–
Flexible with cable lug		[mm²]	–	–	–	–	95	–
Stranded with cable lug		[mm²]	–	–	–	–	120	–
Solid or stranded		[AWG]	18 – 14	14 – 8	14 – 2	2/0	250 MCM	–
Flat conductor Number of segments x width x thickness		[mm]	–	–	–	–	6 x 15 x 0.8 ❹	–
Busbar	Width	[mm]	–	–	–	–	20 x 3	–
Push-through opening	Ø	[mm]	–	–	–	–	–	27
Terminal screw			M3.5	M4	M6	M10	M8 x 25	–
Tightening torque		[Nm]	1.2	1.8	3.5	10	24	–
Tools								
Pozidriv screwdriver		[Size]	2	2	2	–	–	–
Standard screwdriver		[mm]	0.8 x 5.5	1 x 6	1 x 6	–	–	–
Hexagon socket-head screw	SW	[mm]	–	–	–	5	13	–

❶ As required by the contactor.
❷ 6 mm² flexible with ferrules to DIN 46228.
❸ When using 2 conductors, use identical cross-section.
❹ Fixing with box terminals.

Thermal Overload Relays				ZE	ZB12 ZB32	ZB65	ZB150	Z5-.../FF250	ZW7
Auxiliary and control circuit connections									
Rated impulse withstand voltage		U_{imp}	[V]	6000	6000	6000	6000	6000	6000
Overvoltage category / pollution degree				III/3	III/3	III/3	III/3	III/3	III/3
Terminal capacity									
Solid			[mm²]	2 x (0.75 – 2.5)	2 x (0.75 – 4)	2 x (0.75 – 4)	2 x (0.75 – 2.5)	2 x (0.75 – 4)	2 x (0.75 – 4)
Flexible with ferrule			[mm²]	2 x (0.5 – 1.5)	2 x (0.75 – 2.5)	2 x (0.75 – 2.5)	2 x (0.5 – 1.5)	2 x (0.75 – 2.5)	2 x (0.75 – 2.5)
Solid or stranded			[AWG]	2 x (18 – 12)	2 x (18 – 12)	2 x (18 – 12)	2 x (18 – 12)	2 x (18 – 12)	2 x (18 – 12)
Terminal screw				M3.5	M3.5	M3.5	M3.5	M3.5	M3.5
Tightening torque			[Nm]	0.8 – 1.2	0.8 – 1.2	0.8 – 1.2	0.8 – 1.2	0.8 – 1.2	0.8 – 1.2
Tools									
Pozidriv screwdriver			[Size]	2	2	2	2	2	2
Standard screwdriver			[mm]	0.8 x 5.5	1 x 6	1 x 6	1 x 6	1 x 6	1 x 6
Auxiliary circuit rated insulation voltage		U_i	[V AC]	690	500	500	500	500	500
Rated operational voltage		U_e	[V AC]	500	500	500	500	500	500
Safe isolation to VDE 0106 Part 101 and Part 101/A1									
Between the auxiliary contacts			[V AC]	300	240	240	240	240	240
Conventional thermal current		I_{th}	[A]	6	6	6	6	6	6
Rated operational current									
AC-15									
Make contact	120 V	I_e	[A]	1.5	1.5	1.5	1.5	1.5	1.5
	240 V	I_e	[A]	1.5	1.5	1.5	1.5	1.5	1.5
	415 V	I_e	[A]	0.5	0.5	0.5	0.5	0.5	0.5
	500 V	I_e	[A]	0.3	0.5	0.5	0.5	0.5	0.5
Break contact	120 V	I_e	[A]	1.5	1.5	1.5	1.5	1.5	1.5
	240 V	I_e	[A]	1.5	1.5	1.5	1.5	1.5	1.5
	415 V	I_e	[A]	0.7	0.9	0.9	0.9	0.9	0.9
	500 V	I_e	[A]	0.5	0.8	0.8	0.8	0.8	0.8
DC-13 L/R ≤ 15 ms ❶									
	24 V	I_e	[A]	0.9	0.9	0.9	0.9	0.9	0.9
	60 V	I_e	[A]	0.75	0.75	0.75	0.75	0.75	0.75
	110 V	I_e	[A]	0.4	0.4	0.4	0.4	0.4	0.4
	220 V	I_e	[A]	0.2	0.2	0.2	0.2	0.2	0.2
Short-circuit rating without welding									
Max. fuse			[A gG/gL]	4	6	6	6	6	6
UL / CSA Data									
Rated voltage			[V AC / DC]	300 / 300	600 / 300	600 / 300	600 / 300	600 / 300	600 / 300
Pilot duty rating			[AC]	D300 ❷	B600 - same polarity; B300 - opp. polarity	B600 - same polarity; B300 - opp. polarity	B600 - same polarity; B300 - opp. polarity	B600 - same polarity; B300 - opp. polarity	B600 - same polarity; B300 - opp. polarity
			[DC]	R300	R300	R300	R300	R300	R300

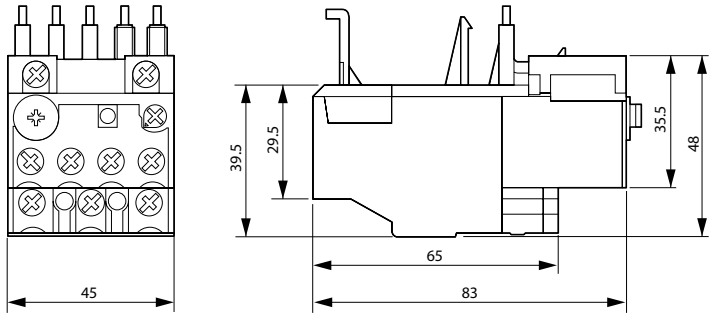
❶ Rated operational current: Making and breaking conditions to DC-13, L/R constant as stated.

❷ Additional rating of 0.6A at 600V AC and 1.5A at 240V AC.

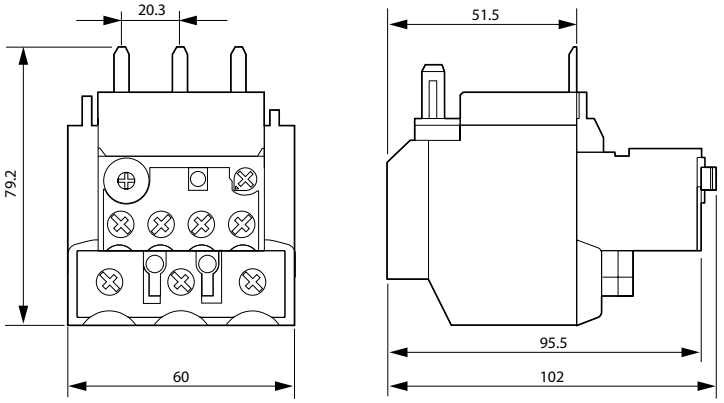
Overload Relays

ZB12-...; ZB32-...

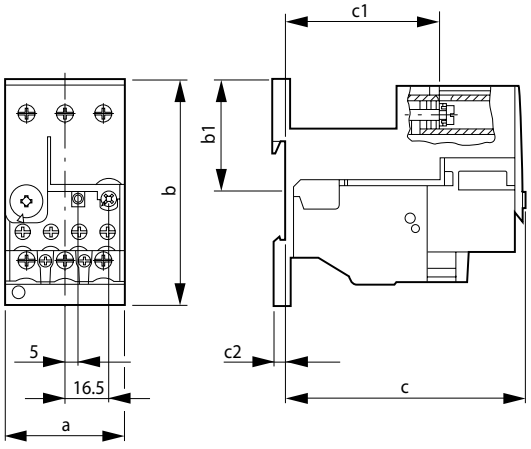
Dimensions are in millimeters.
Not intended for manufacturing purposes.



ZB65-...



ZB32-XEZ; ZB65-XEZ

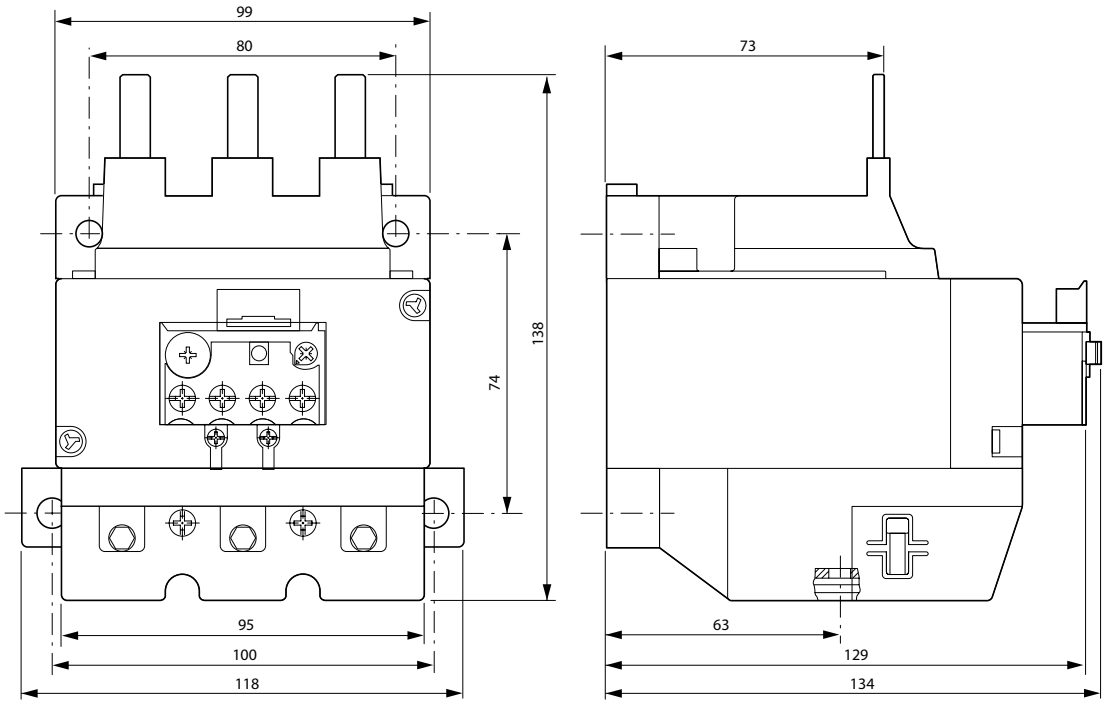


	ZB32-XEZ	ZB65-XEZ
a	45	60
b	85	86
b1	42.5	42.5
c	90.5	112
c1	58.3	80.5
c2	3.8	4.7

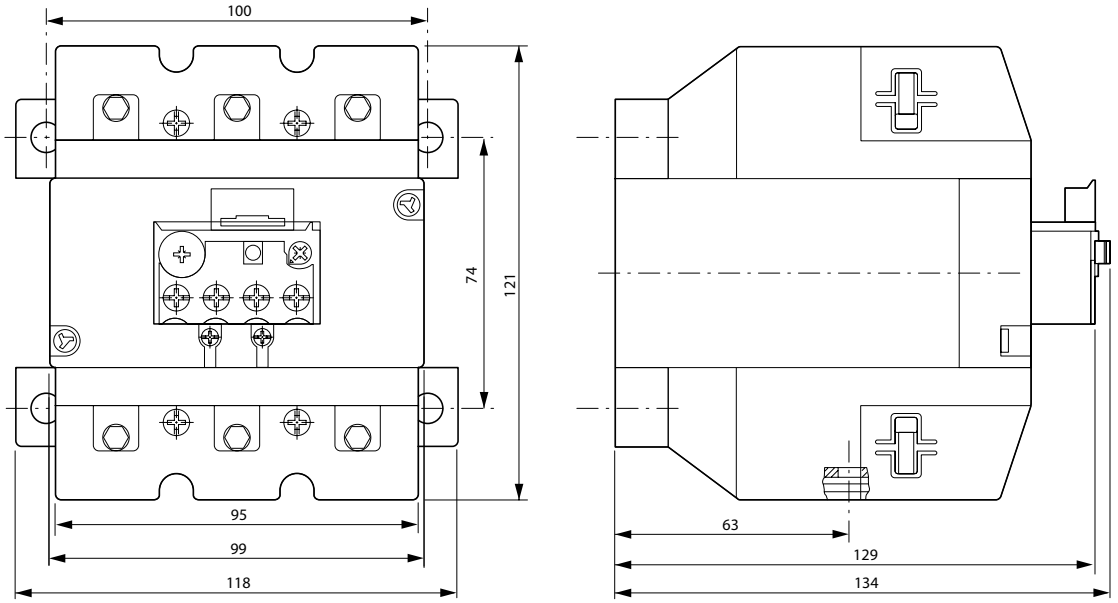
Overload Relays *(continued)*

ZB150-...

Dimensions are in millimeters.
Not intended for manufacturing purposes.



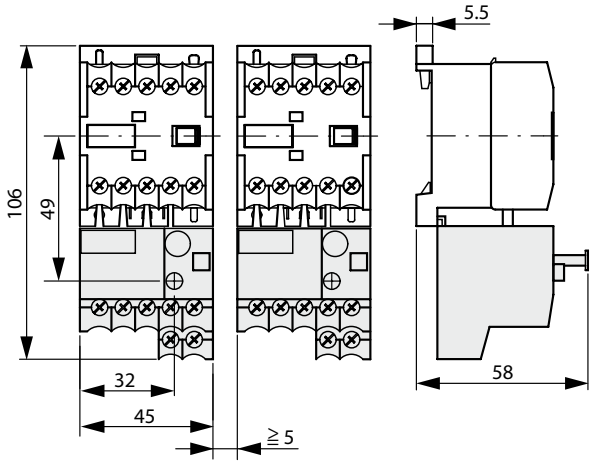
ZB150-.../KK



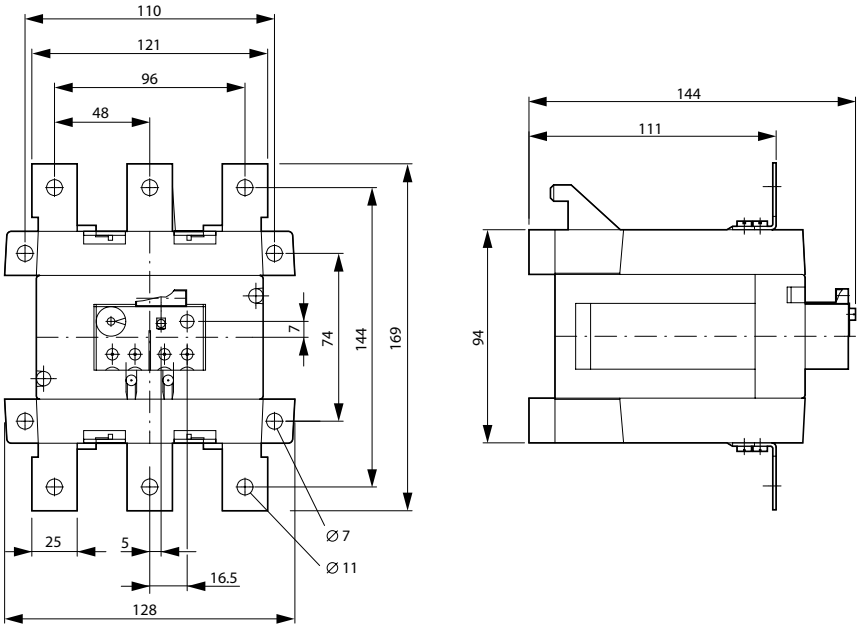
Overload Relays *(continued)*

ZE-...

Dimensions are in millimeters.
Not intended for manufacturing purposes.



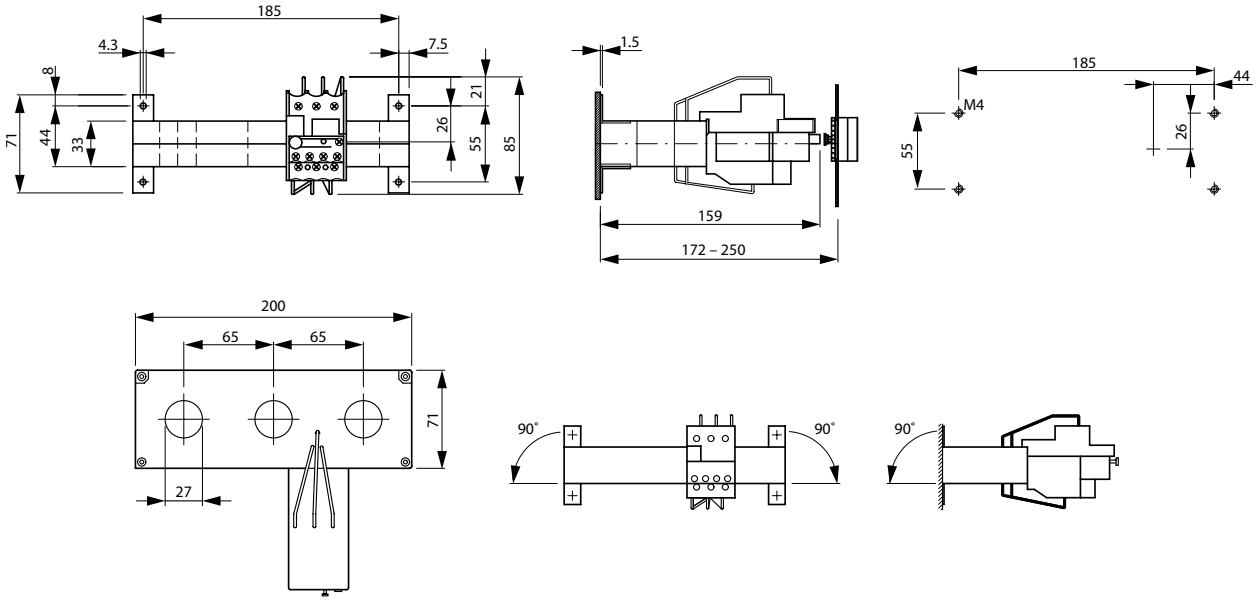
Z5-.../FF250



Current Transformer-operated Overload Relay

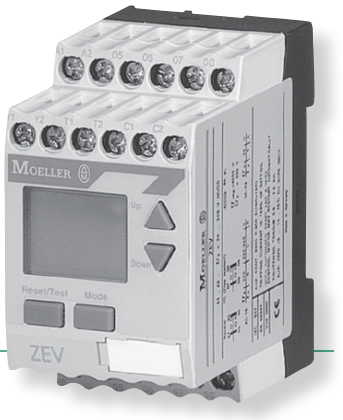
ZW7-...

Dimensions are in millimeters.
Not intended for manufacturing purposes.



ZEV electronic overload relay

the ultimate motor protection for applications to 820A



- > Early warning of an overload
- > Internal fault detection
- > Ambient temperature compensation
- > Test / OFF button
- > Automatic & manual reset
- > Trip indication & trip-free release
- > Integrated NO & NC contact

Moeller's ZEV electronic overload relay offers the ultimate motor protection at an economical price. The base unit protects against overloads, phase failure and phase imbalance in motors from 1 to 820A. Thermistor connections and optional ground-fault protection make the ZEV a great choice for virtually all applications where sophisticated, yet economical motor protection is required.

The new standard in protection

Newly-developed sensor systems and tripping units make the ZEV electronic overload relay the "top-of-the-range" in motor protection. Enhanced tripping classes provide reliable protection for motors with run-up times as long as 40 seconds. Trip classes are selectable from 5 to 40 seconds, allowing precise protection for a range of applications.

Additional features and options

Optional core-balance transformers detect ground faults quickly, while an integrated thermistor connection makes it easy to upgrade to a full motor-protection system. Check out other great features of the ZEV relay listed on the left.

Easy to operate

A built-in LCD guides you through set-up and operation. In the event of a fault, the display indicates the origin – speeding the process of troubleshooting and repair. Configurable auxiliary contacts may be added for communication of ground faults, thermistor trips, internal faults or early warning of an overload.

Flexibility for multiple environments

The multi-voltage module automatically adapts to different voltages from 24-240V AC/ DC, providing a fast and flexible connection to all conventional control.

Compact design

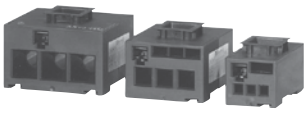
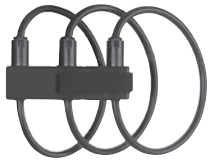
Ring-type current sensors make the ZEV a great choice for protection of even small motors. There's no need for main current wiring or back pan drilling. The sensor is installed quickly and easily with hook & loop fasteners. Compared to conventional transformers, this design is up to 58 times smaller, saving valuable space in the control panel.

Safety and approvals

The ZEV electronic overload relay is touch safe to IP20 specifications. It meets approval standards of UL, CSA, IEC/EN 60 947 and VDE 0660.

- Protects against overloads, phase failure, phase imbalance, internal fault, thermistor tripping and optional ground-fault
- Eight tripping classes from Class 5 to Class 40 protection
- LCD guides set-up and ensures straightforward operation during a fault condition
- DIN-rail or optional screw mounting

ZEV Electronic Motor-Protective Relays *(Complete Unit Selection)*

Overload Relay	Adjustable Setting Range (A)	Length (mm)	Diameter (mm)	For use with...	Catalog Number	Price
ZEV Electronic Motor-Protective Relay						
	1 – 820	–	–	DILEM DILM7 – DILM820	**ZEV**	**248**
Current Sensors						
	1 – 25	–	6	DILEM; DILM7 – DILM25	**ZEV-XSW-25**	**160**
	3 – 65	–	13	DILM32 – DILM50	**ZEV-XSW-65**	**160**
	10 – 145	–	21	DILM65 – DILM115	**ZEV-XSW-145**	**390**
	40 – 820	–	110	DILM185 – DILM820	**ZEV-XSW-820**	**480**
Connecting Cables						
	–	200	–	ZEV-XSW-25 ZEV-XSW-65 ZEV-XSW-145 ZEV-XSW-820	**ZEV-XVK-20**	**12**
	–	400	–		**ZEV-XVK-40**	**14**
	–	800	–		**ZEV-XVK-80**	**16**

Ordering Instructions

★ *A complete ZEV Electronic Motor Protective Relay consists of*
- *One ZEV base unit*
- *One Current Sensor*
- *One Connecting Cable*

★ *For optional ground leakage protection select one Core Balance Transformer*

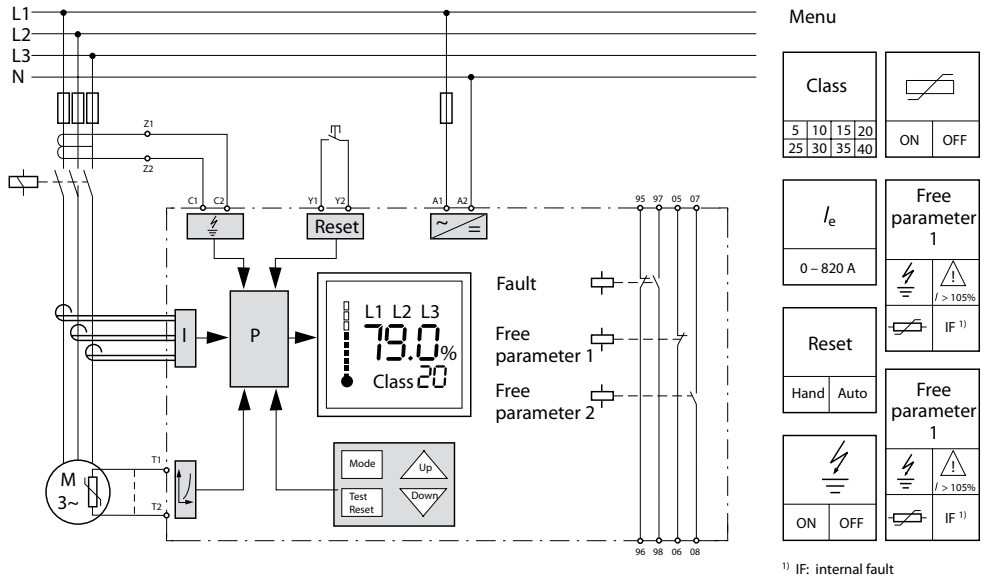
Accessories for ZEV Electronic Motor-Protective Relays

Accessory	Diameter (mm)	For use with...	Fault Current (A)	Catalog Number	Price
SSW Core-Balance Transformers (for ground-leakage monitoring)					
	40	–	0.3	**SSW40-0,3**	**335**
	40	–	0.5	**SSW40-0,5**	**335**
	40	–	1	**SSW40-1**	**335**
	65	–	0.5	**SSW65-0,5**	**445**
	65	–	1	**SSW65-1**	**445**
	120	–	0.5	**SSW120-0,5**	**1172**
	120	–	1	**SSW120-1**	**1172**
Mounting Adapter					
	Enables screw mounting of ZEV and Current Sensors to back pan	ZEV ZEV-XSW-25 ZEV-XSW-65 ZEV-XSW-145	–	**ZB4-101-GF1**	**2**

Ordering Instructions

- ★ *A complete ZEV Electronic Motor Protective Relay consists of*
  - *One ZEV base unit*
  - *One Current Sensor*
  - *One Connecting Cable*
- ★ *For optional ground leakage protection select one Core Balance Transformer*

Circuit for Manual Restart



1) IF: internal fault

Inputs		Outputs	
A 1 / A 2	Rated control voltage	95 / 96	NC contact for overload / thermistor
T 1 / T 2	Thermistor sensor	97 / 98	NO contact for overload / thermistor
C 1 / C 2	SSW core-balance transformers	05 / 06	NC contact freely assignable
Y 1 / Y 2	Remote reset	07 / 08	NO contact freely assignable

Switchgear and cable sizing corresponding to the respective starting inertia (CLASS)

The switchgear is designed for "CLASS 10" in normal and overload operation. To ensure that the switchgear (circuit-breaker and contactor) as well as the cables are not overloaded with extended tripping times, they must be over-dimensioned accordingly. The rated operational current I_e for switchgear and cables can be calculated with the following current factor while taking the tripping class into account:

Tripping Class	Class 5	Class 10	Class 15	Class 20	Class 25	Class 30	Class 35	Class 40
Current factor for rated operational current I_e	1.00	1.00	1.22	1.41	1.58	1.73	1.89	2.00

Relays with integrated sensor

With the ZEV-XSW-25 to ZEV-XSW-145 push-through sensors, the motor supply leads for each phase are pushed through the respective push-through openings. On motor currents which are less than 1 A, the motor supply leads with the ZEV-XSW-25 are inserted in loops. The number of loops depends on the rated motor current involved.

Number of loops n		4	3	2
Rated motor current I_N	[A]	0.31 – 0.4	0.41 – 0.62	0.63 – 1.24
Current settings on relay I_E between lowest and highest value	[A]	1.24 – 1.6	1.23 – 1.86	1.26 – 2.48

The current setting I_E of the device is calculated as: $I_E = n \times I_N$

Tripping times for ZEV electronic motor-protective relay

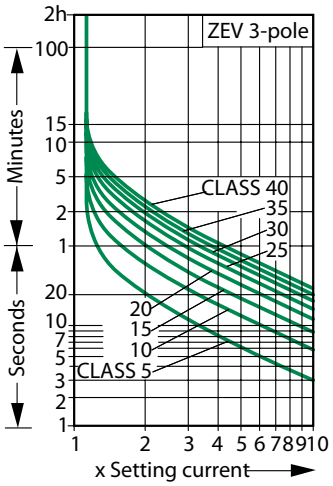
Tripping class, can be selected		5	10	15	20	25	30	35	40
Tripping time in s (± 20 %)		With 3-pole symmetric loading from cold state							
Setting current I_E	**x 3**	11.3	22.6	34	45.3	56.6	67.9	79.2	90.5
	x 4	8	15.9	23.9	31.8	39.8	47.7	55.7	63.6
	x 5	6.1	12.3	18.4	24.6	30.7	36.8	43	49.1
	x 6	5	10	15	20	25	30	35	40
	x 7.2	4.1	8.2	12.3	16.4	20.5	24.5	28.6	32.7
	x 8	3.6	7.3	10.9	14.6	18.2	21.9	25.5	29.2
	x 10	2.9	5.7	8.6	11.5	14.4	17.2	20.1	23

Recovery time after trip

Class		5	10	15	20	25	30	35	40
***t*recovery after overload trip**	**[min]**	5	6	7	8	9	10	11	12
***t*recovery after test button trip**	**[sec]**	5	5	5	5	5	5	5	5

Tripping characteristics:

These tripping characteristics are mean values of the spread at 20°C ambient temperature in a cold state. Tripping time depends on response current. With devices at operating temperature, the tripping time of the overload relay reduces to approximately 25% of the read off value.



With a phase failure or unbalance > 50%, the ZEV will trip within 2.5 seconds.

Thermistor tripping

Rated trip resistance R = 3200 Ω ± 15%

Recovery resistance R = 1500 Ω ± 10%

Total PTC thermistor resistance $\sum R_K \leq 1500\ \Omega$
at $R_K \leq 250\ \Omega$ per sensor: 6 sensors
at $R_K \leq 100\ \Omega$ per sensor: 9 sensors

Ready to respond after trip at 5 °C under response temperature

EC prototype test certification number:

ZEV	PTB 01 ATEX 3233

For protection of motors in EEx e area, also order AWB2300-1433G "ZEV motor-protective system, Overload monitoring of motors in EEX e areas".

Electronic Overload Relay			ZEV
General			
Standards			IEC/EN 60947, VDE 0660, UL, CSA
Climatic proofing			Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open ❶		[°C]	-25…60 °C
		[°F]	*-13…140 °F*
Enclosed ❶		[°C]	-25…40 °C
		[°F]	*-13…104 °F*
Storage		[°C]	-40…80 °C
		[°F]	*-40…176 °F*
Temperature compensation			Continuous
Mounting position			As required
Weight		[kg]	0.20
Mechanical shock resistance half-sinusoidal shock 10ms		[g]	15
Degree of protection			IP20
Protection against direct contact when actuated from front			Finger and back-of-hand proof
Main Contacts			
Overload relay setting range		[A]	1 – 820 ❷
Short-circuit protection rating maximum fuse			With overload relay in conjunction with a transformer as required for the contactor
Terminal screw			M3.5
Tightening torque		[Nm]	0.8
Tools			
Pozidriv screwdriver		[Size]	1
Standard screwdriver		[mm]	0.8 x 5.5
Auxiliary and control circuit connections			
Rated impulse withstand voltage	U_{imp}	[V]	4000
Overvoltage category / pollution degree			III/3
Terminal capacity			
Solid		[mm²]	1 x (0.5 – 2.5) 2 x (0.5 – 1.5) ❸
Flexible with ferrule		[mm²]	1 x (0.5 – 2.5) 2 x (0.5 – 1.5) ❸
Solid or stranded		[AWG]	1 x (18 – 14)
Terminal screw			M3.5
Tightening torque		[Nm]	0.8
Tools			
Pozidriv screwdriver		[Size]	1
Standard screwdriver		[mm]	0.8 x 5.5

Electronic Overload Relay				ZEV
Auxiliary and control circuit connections *(continued)*				
Auxiliary circuit rated insulation voltage		U_i	[V AC]	250
Rated operational voltage		U_e	[V AC]	240
Safe isolation to VDE 0106 Part 101 and Part 101/A1				
Between the auxiliary contacts			[V AC]	240 ❹
Conventional thermal current		I_{th}	[A]	6
Rated operational current				
AC-15				
Make contact	120 V	I_e	[A]	3 ❺
	240 V	I_e	[A]	3 ❺
	415 V	I_e	[A]	–
	500 V	I_e	[A]	–
Break contact	120 V	I_e	[A]	3
	240 V	I_e	[A]	3
	415 V	I_e	[A]	–
	500 V	I_e	[A]	–
DC-13 L/R ≤ 15 ms ❻				
	24 V	I_e	[A]	1
	60 V	I_e	[A]	–
	110 V	I_e	[A]	–
	220 V	I_e	[A]	–
Power consumption		$P_{max.}$	[W]	2.5
Short-circuit rating without welding				
Max. fuse			[A gG/gL]	6
Pick-up and drop-out values				
AC operated			[x U_c]	0.85 – 1.1
DC operated			[x U_c]	0.85 – 1.1
UL / CSA				
Rated Voltage			[V AC/DC]	600 / 300
Pilot Duty			[AC]	B600 Same polarity B300 Opposite polarity
			[DC]	R300
Thermistor Protection				
Total resistance (cold)			[Ω]	1500
Response value			[Ω]	2720 – 3680
Reset range			[Ω]	1500 – 1650
Recovery time				
Overload				See page B22
Thermistor tripping				5 °C under response temperature
Ground-fault protection				Immediate

❶ Limited readability of the LCD display at < -15 °C (5 °F).
❷ Setting range dependant on current sensor.
❸ Only the following combinations are permissible: 0.5 and 0.75mm² , 0.75 and 1 mm² , 1 and 1.5 mm².
❹ Up to 240 V depending on contact assignment between main supply voltage and outputs. No potential isolation to thermistor, core balance transformer or the current sensor.
❺ Auxiliary contacts are 1.5 A.
❻ Making and breaking conditions to DC-13, L/R constant as stated.

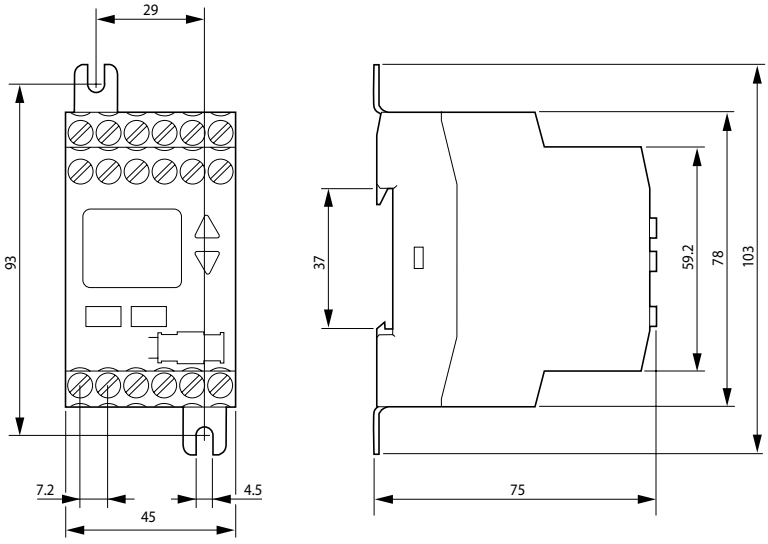
Current Sensors			ZEV-XSW-25	ZEV-XSW-65	ZEV-XSW-145	ZEV-XSW-820
General						
Standards			IEC/EN 60947, VDE 0660, UL, CSA			
Climatic proofing			Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30			
Ambient temperature						
Open		[°C]	-25…60 °C	-25…60 °C	-25…60 °C	-25…60 °C
		[°F]	*-13…140 °F*	*-13…140 °F*	*-13…140 °F*	*-13…140 °F*
Enclosed		[°C]	-25…40 °C	-25…40 °C	-25…40 °C	-25…40 °C
		[°F]	*-13…104 °F*	*-13…104 °F*	*-13…104 °F*	*-13…104 °F*
Storage		[°C]	-40…80 °C	-40…80 °C	-40…80 °C	-40…80 °C
		[°F]	*-40…176 °F*	*-40…176 °F*	*-40…176 °F*	*-40…176 °F*
Temperature compensation			Continuous			
Mounting position			As required			
Weight		[kg]	0.21	0.37	0.45	0.30
Mechanical shock resistance half-sinusoidal shock 10ms		[g]	15	15	15	15
Degree of protection			IP20	IP20	IP20	IP20
Protection against direct contact when actuated from front			Finger and back-of-hand proof			
Main Contacts						
Rated impulse withstand voltage	U_{imp}	[V AC]	❶	❶	❶	8000
Overvoltage category / pollution degree			❶	❶	❶	III/3
Rated insulation voltage	U_i	[V AC]	❶	❶	❶	1000
Rated operational voltage	U_e	[V AC]	❶	❶	❶	1000
Safe isolation to VDE 0106 Part 101 and Part 101/A1						
Between busbar and sensor		[V AC]	–	–	–	500
Overload relay setting range		[A]	1 – 25	3 – 65	10 – 145	40 – 820
Short-circuit protection rating maximum fuse			With overload relay in conjunction with a transformer as required for the contactor			
Push-through opening	Ø	[mm]	6	13	21	110

❶ Dependant on the current wiring that is used.

Overload Relays

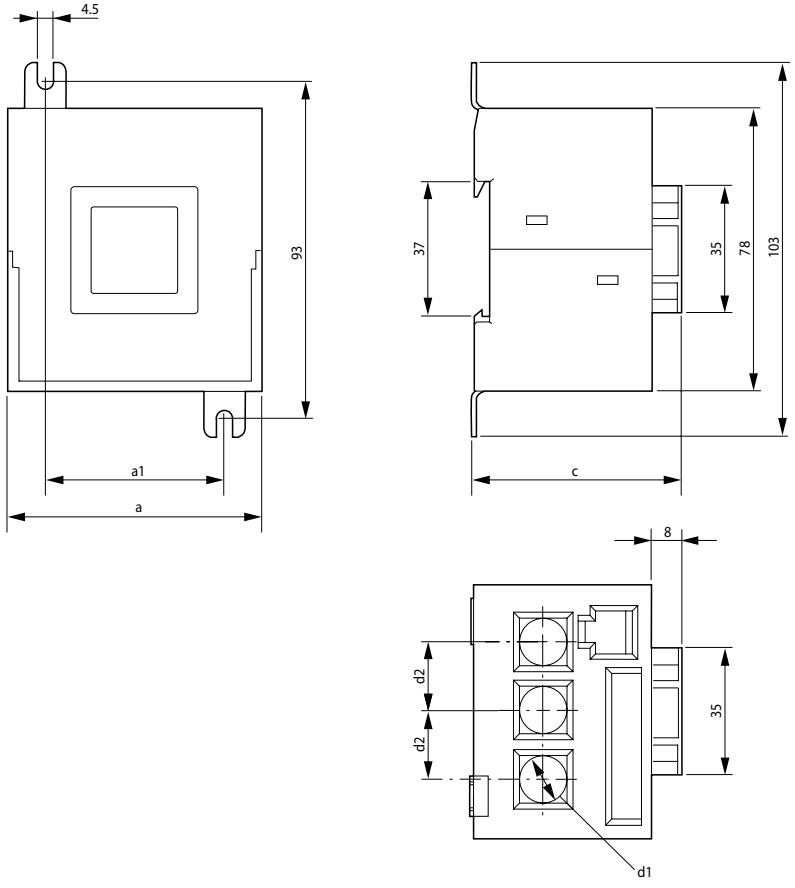
ZEV

Dimensions are in millimeters.
Not intended for manufacturing purposes.



Current Sensors

ZEV-XSW-...

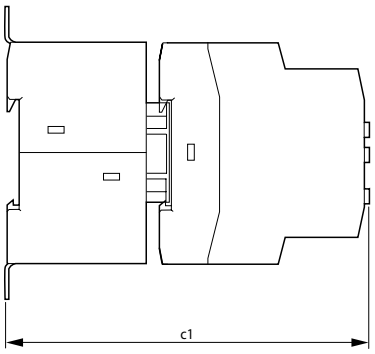


ZEV-XSW-...	25	65	145
a	45	70	90
a1	24	49	68
c	50	58	65
d1	6	13	21
d2	11.2	19	26

Overload Relays

ZEV + ZEV-XSW-...

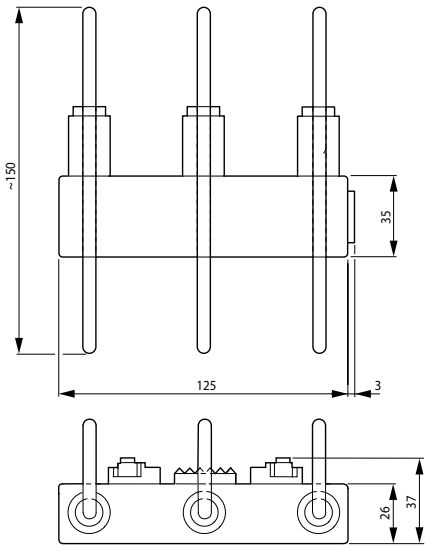
Dimensions are in millimeters.
Not intended for manufacturing purposes.



ZEV + ZEV-XSW-...	25	65	145
c1	120	128	134

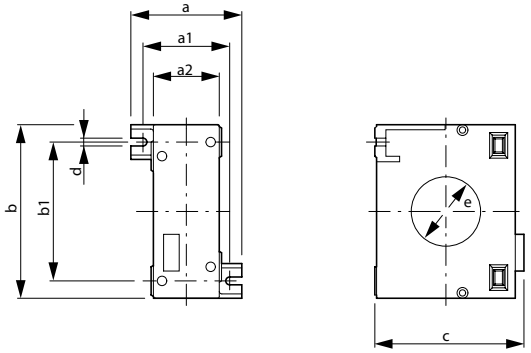
Current Sensor

ZEV-XSW-820



Core-balance Transformer

SSW40-...; SSW65-...; SSW120-...



SSW...	40-...	65-...	120-...
a	64	75	86.5
a1	50	60	70
a2	38	43	54.5
b	100	124	200
b1	80	100	170
c	86	112	205
d	4.5	4.5	4.5
e	40	65	120

EMT thermistor protection relays

for motors with imbedded P.T.C. thermistors

Moeller's EMT Thermistor Protection Relays are specifically designed to monitor positive temperature coefficient (PTC) thermistors embedded in the motor windings. Typically used in "mission critical" applications, PTC thermistors, coupled with EMT Thermistor Protection Relays provide extremely precise thermal feedback and increased motor protection.

> Extremely accurate overload protection

> Universal supply voltage

> Choose from basic to advanced protection

Three designs to choose

All EMT relays feature automatic reset with Power-ON and fault-indicating LED. Depending on the model chosen, the following additional features are also available:

- Selectable manual or automatic reset
- Remote reset
- Short circuit recognition in the sensor circuit
- Reliable fault signaling even under supply voltage failure (zero voltage safety)
- Short circuit recognition and zero-voltage safety can be switched off
- Test button

Universal input voltage

Moeller EMT Thermistor Protection relays accept voltage inputs of 24 – 240V AC 50-60Hz; and 24 – 240V DC making them ideal for the majority of normal control circuit applications.

Zero-voltage safety

The EMT6-DBK includes fault signaling even with a loss of supply voltage. This important safety feature stores the condition of the relay prior to the loss of power. When power is restored, the relay's output and LED fault indication retain state and act accordingly.

Feature Comparison	Protection Relay		
	EMT-6	EMT6-DB	EMT6-DBK
LED power-ON and fault indication	✔	✔	✔
Thermal overload protection (from PTC sensors)	✔	✔	✔
Automatic reset	✔	✔	✔
Universal control voltage	✔	✔	✔
Short circuit recognition in the sensor circuit	✔ (option)	✔ (option)	✔
Manual or automatic reset		✔	✔
Remote or local reset		✔	✔
Test button		✔	✔
Fault signaling with loss of supply voltage (zero-voltage safety)			✔
Short circuit recognition and zero voltage safety can be turned off			✔

✔ = standard features

- For protection of motors with P.T.C. thermistors embedded in their windings
- LED display of operational status
- Manual / Automatic reset or remote reset available

Thermistor Protection Relays

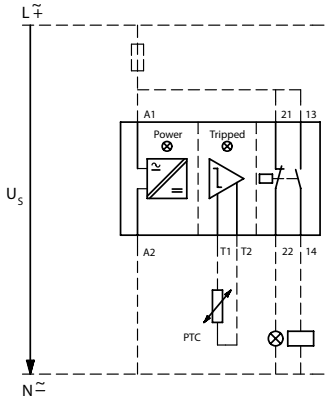
Protection Relay	Description	IEC Rated Operating Current AC-15 220 – 240 V (A)	IEC Rated Operating Current AC-14 380 – 400 V (A)	UL/CSA Pilot Duty Rating	UL/CSA Rated Operational Voltage Range	Catalog Number	Price
Automatic Reset							
	• Automatic RESET • Power ON and fault indicating LED display	3	3	B 300	24 – 240 V 50/60 Hz; 24 – 240 V DC	**EMT6**	**315**
	• Automatic RESET • Power ON and fault indicating LED display • Short-circuit recognition in the sensor circuit	3	3	B 300	24 – 240 V 50/60 Hz; 24 – 240 V DC	**EMT6-K**	**255**
	• Automatic RESET • Power ON and fault indicating LED display	3	3	B 300	230 V 50/60 Hz	**EMT6(230V)**	**315**
Manual + Automatic Reset							
	• Manual or automatic RESET • For manual or remote resetting • Test button • Power ON and fault indicating LED display	3	3	B 300	24 – 240 V 50/60 Hz; 24 – 240 V DC	**EMT6-DB**	**465**
	• Manual or automatic RESET • For manual or remote resetting • Test button • Power ON and fault indicating LED display • Short-circuit recognition in the sensor circuit	3	3	B 300	24 – 240 V 50/60 Hz; 24 – 240 V DC	**EMT6-KDB**	**440**
	• Manual or automatic RESET • For manual or remote resetting • Test button • Power ON and fault indicating LED display	3	3	B 300	230 V 50/60 Hz	**EMT6-DB(230V)**	**465**
Manual + Automatic Reset / Multi-function Device							
	• Manual or automatic reset / Multi-function device • Short-circuit recognition in the sensor circuit • Reliable fault signalling even under supply voltage failure (zero-voltage safety) • For manual or remote resetting • Test button • Short-circuit recognition and zero-voltage safety can be switched off • Power ON and fault indicating LED display	3	3	B 300	24 – 240 V 50/60 Hz; 24 – 240 V DC	**EMT6-DBK**	**540**

LED display	Flow diagrams	Notes
green		Supply voltage is applied
red		Device has tripped
red		Device has tripped/short circuit in the sensor circuit

Accessories

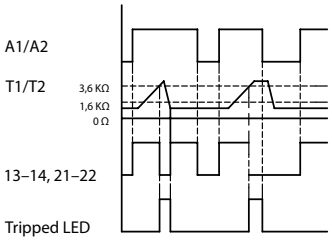
Accessory	Description	For use with...	Catalog Number	Price
Screw Adapter				
	Without the adaptor the EMT 6 is suitable for 35mm DIN-rail mounting only. The adapter enables the relay to become a panel mounted device using conventional screws.	EMT6	**CS-TE**	**9**

Application Notes



EMT6-K, EMT6-(K)DB, EMT6-DBK

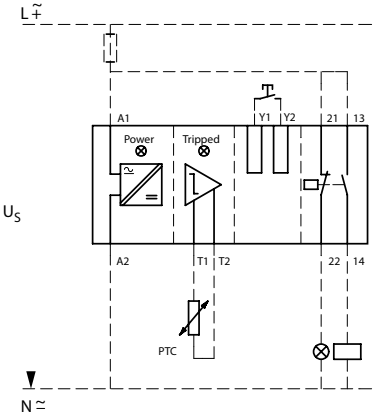
Auto



With the EMT6, EMT6(230V), EMT6-DB and EMT6-DB(230V) an additional short-circuit protection in the sensor circuit with current monitor is to be provided.

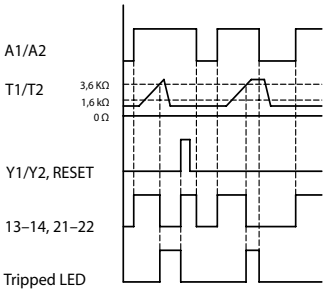
Can be snap-mounted on an EN 50 022 35mm DIN rail.

At $R_k \leq 250\ \Omega$ per sensor: 6 sensors,
At $R_k \leq 100\ \Omega$ per sensor: 9 sensors in the winding (provided by user)
Maximum length of thermistor cable 250 m (un-screened);
Total PTC thermistor resistance $\Sigma\ R_k \leq 1500\ \Omega$



EMT6-(K)DB, EMT6-DBK

Manual

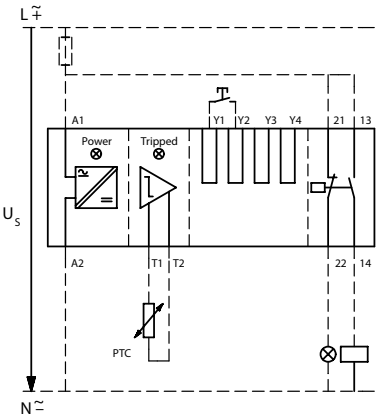


Sensor characteristic values at U_s and +20 °C

	EMT6...	
T1, T2 short-circuited	–	1.9
4 k Ω	3	0.8
T1-T2 open	5.1	–

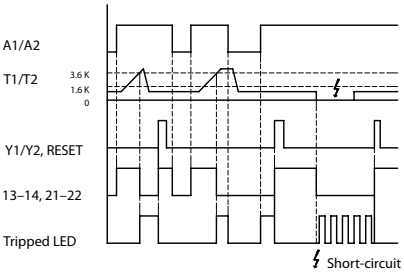
Functions that can be disconnected on EMT6-DBK:

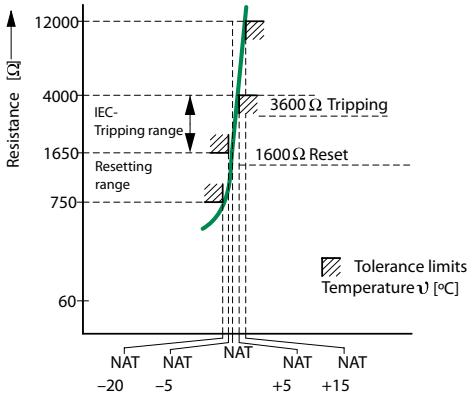
Function	Disconnection via jumper
Short-circuit recognition	$Y_1 - Y_3$
Zero-voltage safety	$Y_1 - Y_4$



EMT6-DBK

Zero-voltage safe operation





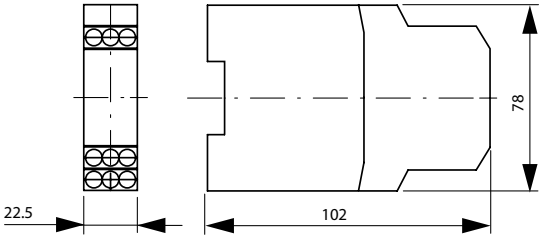
Thermistor Overload Relays				EMT6...
General				
Standards				IEC/EN 60947, VDE 0660, UL, CSA
EC Prototype test certification number				PTB 02 ATEX 3162
Climatic proofing				Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature				
Open			[°C / °F]	-25...60 °C / *-13...140 °F*
Enclosed			[°C / °F]	-25...45 °C / *-13...113 °F*
Storage			[°C / °F]	-45...60 °C / *-49...140 °F*
Mounting position				As required
Weight			[kg]	0.13
Mechanical shock resistance half-sinusoidal shock 10ms			[g]	10
Degree of protection				IP20
Protection against direct contact when actuated from front				Finger and back-of-hand proof
Safe isolation to VDE 0106 Part 101 and Part 101/A1				
Between the contacts			[V AC]	250
Between contacts and supply voltage			[V AC]	250
Auxiliary and Control Circuit Connections				
Rated impulse withstand voltage		U_{imp}	[V AC]	6000
Overvoltage category / pollution degree				III/3
Auxiliary and control circuit terminal capacity				
Solid			[mm²]	1 x 2.5; 2 x (0.5 – 1.5)
Flexible with ferrule			[mm²]	1 x 2.5; 2 x (0.5 – 1.5)
Solid or stranded			[AWG]	20 – 14
Terminal screw				M3.5
Tightening torque			[Nm]	1.2
Tools				
Pozidriv screwdriver			[Size]	2
Standard screwdriver			[mm]	1 x 6
Auxiliary Circuit				
Rated insulation voltage		U_i	[V]	400
Rated operational current				
AC-14				
Make contact	415 V	I_e	[A]	3
Break contact	415 V	I_e	[A]	3
AC-15				
Make contact	240 V	I_e	[A]	3
	415 V	I_e	[A]	1
Break contact	240 V	I_e	[A]	3
	415 V	I_e	[A]	1
Short-circuit protective device				
Max. Fuse		gG/gL	[A]	6
Control Circuit				
Rated insulation voltage		U_i	[V]	240
Rated operational voltage		U_e	[V]	240 ❶
Pick-up and drop-out values			[x U_e]	0.85 – 1.1
Power consumption				
AC			[VA]	3.5
DC			[W]	2
Trip at approx.			[Ω]	≥ 3600
Recovery at approx.			[Ω]	≥ 1600

❶ EMT6(-DB)230 V; U_e = 230 V

Thermistor Protection Relays

EMT6...

Dimensions are in millimeters.
Not intended for manufacturing purposes.



control relays

MOELLER

series DIL control relays

compact general purpose relays for industry

Flexibility, safety and economy. . . Moeller's DIL series of control relays offer modern features in a compact, smart design. The line is made up of two models; DIL A relays, which are based on Moeller's new range of popular DIL M contactors; and DIL ER relays, which are built in the same compact frame as our miniature DIL EM contactors. Both lines share the same accessories with their contactor family. This simplifies stocking and makes ordering fast and efficient.

- > 4, 6 and 8 pole general purpose relays
- > Two product lines to choose
- > Versatile and economical
- > Broad line of accessories

Ideal for fail-safe control circuits

Modern applications requiring safety redundancy circuits ensure trouble free fault detection if the control relays have positively guided contacts. Both the DIL A and the miniature DIL ER control relays and auxiliary contacts (except overlapping contacts) meet these requirements. Positively-guided contacts are designed such that no NO contact can close before any NC contact can open. This important feature maintains a minimum contact clearance of 0.5mm and ensures that the NC contact stays open if a NO contact welds. This feature makes Moeller's DIL series of control relays ideal for critical applications such as press control.

Moeller's DC relays also include built-in surge suppressors that eliminate harmful voltage spikes caused when the relay is de-energized. This protects sensitive electronics, such as PLCs, that are within the same control circuit. Suppressors for AC relays are an available option.

DIL A – comprehensive and modern

NEW

Base DIL A control relays have four-poles rated to 10 amps, (UL/CSA general purpose). Two and four-pole auxiliary contact blocks may be added to increase the relay's capacity to a maximum of eight poles. Various NO and NC configurations are available, including late break and early make. Auxiliary contacts are also rated to 10 amps.

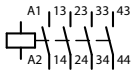
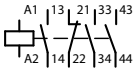
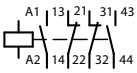
A comprehensive range of accessories from suppressors and voltage indicators to amplifiers and timing modules make DIL A relays a great choice for applications demanding maximum flexibility.

DIL ER – compact and economical

Moeller's miniature DIL ER relays are small but rugged. These four-pole devices are housed in a package only 45mm (1.77") wide, but provide up to 10 million operations! Two and four-pole auxiliary contact blocks can be used to create a six or eight pole relay. The base relay and auxiliaries are all rated to 10 amps (UL/CSA general purpose).

- Six and eight-pole relays available by adding snap-on auxiliary contact block
- Positively guided contacts; NO and NC contacts can never be closed simultaneously
- Share common accessories with Moeller's popular DIL M contactor line

DILA Control Relays with AC Coil, 4-pole ❶

Control Relay	Schematic	Contacts NO	Contacts NC	UL/CSA Pilot Duty Rating	UL/CSA General Purpose (A)	Catalog Number	Price
		4	0	A 600 P 300	10	DILA-40◆	62
		3	1			DILA-31◆	62
		2	2			DILA-22◆	62

A.C. Coil Codes ❶

Complete catalog number (◆) with…	Voltage Range 50Hz	Voltage Range 60Hz
(24V60Hz)	–	24V
(48V60Hz)	42V	48V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

UL/CSA Rating Codes *(per UL508 and CSA 22.2 No.14-95)*

UL/CSA Standard	Continuous Amps	Circuit Voltage 120VAC Make	120VAC Break	240VAC Make	240VAC Break	480VAC Make	480VAC Break	600VAC Make	600VAC Break	VA Make	VA Break
A600	10	60	6	30	3	15	1.5	12	1.2	7200	720
UL/CSA Standard	Continuous Amps	125VDC Make	125VDC Break	250VDC Make	250VDC Break	301-600VDC Make	301-600VDC Break			VA Make	VA Break
P300	5	1.1	1.1	0.55	0.55	–	–			138	138

NOTE: This table represents minimum requirements to achieve a rating of A600/P300. All Moeller relays meet or exceed these standards.

❶ Other coil voltages between 12 and 600VAC available by special order; Contact your Moeller representative for information.

Ordering Instructions

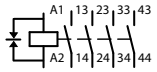
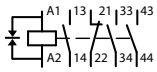
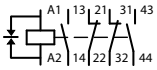
1 Locate the desired relay

2 Complete catalog number by adding coil voltage

3 See pages C8 - C11 for auxiliaries & accessories

- Six and eight-pole relays available by adding snap-on auxiliary contact block
- DC coils supplied with an integrated varistor surge suppressor
- Positively guided contacts; NO and NC contacts can never be closed simultaneously
- Share common accessories with Moeller's popular DIL M contactor line

DILA Control Relays with DC Coil, 4-pole ❶

Control Relay	Schematic	Contacts NO	Contacts NC	UL/CSA Pilot Duty Rating	UL/CSA General Purpose (A)	Catalog Number	Price
		4	0	A 600 P 300	10	DILA-40◆	74
		3	1			DILA-31◆	74
		2	2			DILA-22◆	74

D.C. Coil Codes ❶

Complete catalog number (◆) with...	Voltage
(24VDC)	24V
(48VDC)	48V

UL/CSA Rating Codes *(per UL508 and CSA 22.2 No.14-95)*

UL/CSA Standard	Continuous Amps	Circuit Voltage 120VAC Make	120VAC Break	240VAC Make	240VAC Break	480VAC Make	480VAC Break	600VAC Make	600VAC Break	VA Make	VA Break
A600	10	60	6	30	3	15	1.5	12	1.2	7200	720
UL/CSA Standard	Continuous Amps	125VDC Make	125VDC Break	250VDC Make	250VDC Break	301-600VDC Make	301-600VDC Break			VA Make	VA Break
P300	5	1.1	1.1	0.55	0.55	–	–			138	138

NOTE: This table represents minimum requirements to achieve a rating of A600/P300. All Moeller relays meet or exceed these standards.

❶ Other coil voltages between 12 and 250VDC available by special order; Contact your Moeller representative for information.

Ordering Instructions

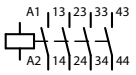
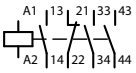
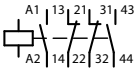
1 Locate the desired relay

2 Complete catalog number by adding coil voltage

3 See pages C8 - C11 for auxiliaries & accessories

- Miniature, economical relay for worldwide use
- Six and eight-pole relays available by adding snap-on auxiliary contact block
- Positively guided contacts; NO and NC contacts can never be closed simultaneously
- Share common accessories with Moeller's popular DIL EM contactor line

DILER Miniature Control Relays with AC Coil, 4-pole

Control Relay	Schematic	Contacts NO	Contacts NC	UL/CSA Pilot Duty Rating	UL/CSA General Purpose (A)	Catalog Number	Price
		4	0	A 600 P 300	10	DILER-40◆	60
		3	1			DILER-31◆	60
		2	2			DILER-22◆	60

A.C. Coil Codes

Complete catalog number (◆) with...	Voltage Range 50 Hz	Voltage Range 60Hz
(24V60Hz)	–	24V
(48V60Hz)	42V	48V
(120V60Hz)	110V	120V
(208V60Hz)	–	208V
(240V60Hz)	230V	240V
(480V60Hz)	415V	480V
(600V60Hz)	–	600V

Ordering Instructions

1. Locate the desired relay
2. Complete catalog number by adding coil voltage
3. See pages C8 - C11 for auxiliaries & accessories

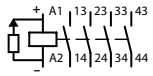
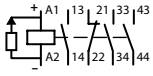
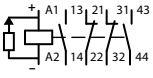
UL/CSA Rating Codes *(per UL508 and CSA 22.2 No.14-95)*

UL/CSA Standard	Continuous Amps	Circuit Voltage 120VAC Make	120VAC Break	240VAC Make	240VAC Break	480VAC Make	480VAC Break	600VAC Make	600VAC Break	VA Make	VA Break
A600	10	60	6	30	3	15	1.5	12	1.2	7200	720
UL/CSA Standard	Continuous Amps	125VDC Make	125VDC Break	250VDC Make	250VDC Break	301-600VDC Make	301-600VDC Break			VA Make	VA Break
P300	5	1.1	1.1	0.55	0.55	–	–			138	138

NOTE: This table represents minimum requirements to achieve a rating of A600/P300. All Moeller relays meet or exceed these standards.

- Miniature, economical relay for worldwide use
- Six and eight-pole relays available by adding snap-on auxiliary contact block
- DC coils have an integrated Resistor/Diode combination surge suppressor
- Positively guided contacts; NO and NC contacts can never be closed simultaneously
- Share common accessories with Moeller's popular DIL EM contactor line

DILER Miniature Control Relays with DC Coil, 4-pole

Control Relay	Schematic	Contacts NO	Contacts NC	UL/CSA Pilot Duty Rating	UL/CSA General Purpose (A)	Catalog Number	Price
		4	0	A 600 P 300	10	DILER-40-G◆	70
		3	1			DILER-31-G◆	70
		2	2			DILER-22-G◆	70

D.C. Coil Codes

Complete catalog number (◆) with…	Voltage
(24VDC)	24V
(48VDC)	48V
(110VDC)	110V

Ordering Instructions

1 Locate the desired relay → **2** Complete catalog number by adding coil voltage → **3** See pages C8 - C11 for auxiliaries & accessories

UL/CSA Rating Codes *(per UL508 and CSA 22.2 No.14-95)*

UL/CSA Standard	Continuous Amps	Circuit Voltage 120VAC Make	120VAC Break	240VAC Make	240VAC Break	480VAC Make	480VAC Break	600VAC Make	600VAC Break	VA Make	VA Break
A600	10	60	6	30	3	15	1.5	12	1.2	7200	720
UL/CSA Standard	Continuous Amps	125VDC Make	125VDC Break	250VDC Make	250VDC Break	301-600VDC Make	301-600VDC Break			VA Make	VA Break
P300	5	1.1	1.1	0.55	0.55	–	–			138	138

NOTE: This table represents minimum requirements to achieve a rating of A600/P300. All Moeller relays meet or exceed these standards.

DILA Auxiliary Contact Modules ❶

Accessory	Contacts NO	Contacts NC	UL/CSA Pilot Duty Rating	UL/CSA General Use (A) 600V AC	UL/CSA General Use (A) 250V DC	Schematic	For Use With...	Catalog Number	Price
	2	0	A600 P300	10	1		DILA DILM7 – DILM32	DILA-XHI20	26
	1	1						DILA-XHI11	26
	0	2						DILA-XHI02	26
	1EM ❷	1LB ❷						DILA-XHIV11	50
	4	0	A600 P300	10	1		DILA DILM7 – DILM32	DILA-XHI40	46
	3	1						DILA-XHI31	46
	2	2						DILA-XHI22	46
	1	3						DILA-XHI13	46
	0	4						DILA-XHI04	46
	1+ 1EM ❷	1+ 1LB ❷						DILA-XHIV22	72

❶ Positively guided contacts: Standard NO and NC contacts can never be closed simultaneously; By definition, overlapping contacts (i.e., Early Make and Late Break) cannot be positively guided.

❷ EM = Early Make.
LB = Late Break.

UL/CSA Rating Codes *(per UL508 and CSA 22.2 No.14-95)*

UL/CSA Standard	Continuous Amps	Circuit Voltage 120VAC Make	120VAC Break	240VAC Make	240VAC Break	480VAC Make	480VAC Break	600VAC Make	600VAC Break	VA Make	VA Break
A600	10	60	6	30	3	15	1.5	12	1.2	7200	720
UL/CSA Standard	Continuous Amps	125VDC Make	125VDC Break	250VDC Make	250VDC Break	301-600VDC Make	301-600VDC Break			VA Make	VA Break
P300	5	1.1	1.1	0.55	0.55	–	–			138	138

NOTE: This table represents minimum requirements to achieve a rating of A600/P300. All Moeller relays meet or exceed these standards.

DILER Auxiliary Contact Modules ❶

Accessory	Contacts NO	Contacts NC	UL/CSA Pilot Duty Rating	UL/CSA General Use (A) 600V AC	UL/CSA General Use (A) 250V DC	Schematic	For Use With...	Catalog Number	Price
	0	2	A600 P300	10	1		DILER DILEM	02DILE	20
	1	1						11DILE	20
	2	0						20DILE	20
	1EM ❷	1LB ❷						11DDILE	40
	0	4	A600 P300	10	1		DILER DILEM	04DILE	32
	1	3						13DILE	32
	2	2						22DILE	32
	3	1						31DILE	32
	4	0						40DILE	32
	1 + 1EM ❷	1 + 1LB ❷						22DDILE	60

❶ Positively guided contacts: Standard NO and NC contacts can never be closed simultaneously; By definition, overlapping contacts (i.e., Early Make and Late Break) cannot be positively-driven.

❷ EM = Early Make.
LB = Late Break.

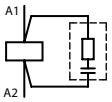
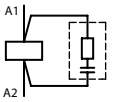
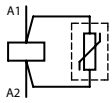
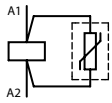
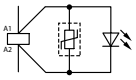
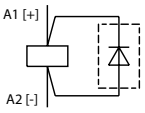
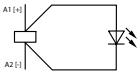
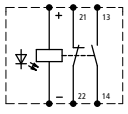
UL/CSA Rating Codes *(per UL508 and CSA 22.2 No.14-95)*

UL/CSA Standard	Continuous Amps	Circuit Voltage 120VAC Make	120VAC Break	240VAC Make	240VAC Break	480VAC Make	480VAC Break	600VAC Make	600VAC Break	VA Make	VA Break
A600	10	60	6	30	3	15	1.5	12	1.2	7200	720
UL/CSA Standard	Continuous Amps	125VDC Make	125VDC Break	250VDC Make	250VDC Break	301-600VDC Make	301-600VDC Break			VA Make	VA Break
P300	5	1.1	1.1	0.55	0.55	–	–			138	138

NOTE: This table represents minimum requirements to achieve a rating of A600/P300. All Moeller relays meet or exceed these standards.

C
Control Relays

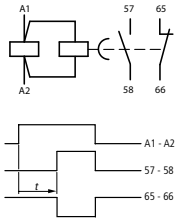
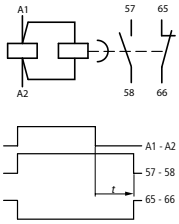
Suppressors and Voltage Indicator ❶

Accessory	Description	Supply Voltage	Schematic	For use with...	Catalog Number	Price
RC Suppressors ❶						
	For AC operated relays (50-60 Hz). Please be aware that RC Suppressors can cause a drop-out delay.	24 – 48V AC		DILER DILEM	**RCDILE48**	**32**
		110 – 250V AC			**RCDILE250**	**32**
	For AC operated relays (50-60 Hz). DC operated relays have an integrated suppressor. Please be aware that Suppressors can cause a drop-out delay.	24 – 48V AC		DILA DILM7 – 12 DILMP20	**DILM12-XSPR48**	**45**
		110 – 240V AC			**DILM12-XSPR240**	**45**
		240 – 500V AC			**DILM12-XSPR500**	**45**
Varistor Suppressors ❶						
	For AC operated Relays (50-60 Hz). DC operated Relays have an integrated suppressor.	24 – 48V AC		DILER DILEM	**VGDILE48**	**28**
		110 – 250V AC			**VGDILE250**	**28**
		380 – 415V AC			**VGDILE415**	**28**
	For AC operated Relays (50-60 Hz). DC operated Relays have an integrated suppressor.	24 – 48V AC		DILA DILM7 – 12 DILMP20	**DILM12-XSPV48**	**45**
		48 – 130V AC			**DILM12-XSPV130**	**45**
		130 – 240V AC			**DILM12-XSPV240**	**45**
		240 – 500V AC			**DILM12-XSPV500**	**45**
	**Suppressor with LED** For AC operated Relays (50-60 Hz). DC operated Relays have an integrated suppressor.	24 – 48V AC		DILA DILM7 – 12 DILMP20	**DILM12-XSPVL48**	**50**
		130 – 240V AC			**DILM12-XSPVL240**	**50**
Free Wheel Diode Suppressor ❶						
	For DC operated Relays. Functions in addition to the built-in DC suppressor circuit. Prevents negative breaking voltage when relays are used with sensitive electronics.	12 – 250V DC		DILA DILM7 – DILM12 DILMP20	**DILM12-XSPD**	**27**
Voltage Indicator ❶						
	For DC operated Relays. Indicates presence of control voltage.	24 – 48V DC		DILA DILM7 – 12 DILMP20	**DILM12-XSPI48**	**35**
		48 – 130V DC			**DILM12-XSPI130**	**35**
		130 – 250V DC			**DILM12-XSPI250**	**35**
Amplifier Module (separate mounting)						
	DC operated Relays. Interposing relay that provides a dry contact signal to activate an AC operated Contactor or Relay; Actuates on as little as 25mA	24V DC [25mA...2A] ❷		When 24VDC low current [25mA...2A] control is required to operate AC coils ❷	**ETS4-VS3**	**161**

❶ Suppressors, voltage indicators and electronic timers cannot be mounted simultaneously.

❷ When contactor AC coil is over 2A, use DILER or DILEM-G relay instead.

Electronic Timing Modules ❶

Accessory	Description	Supply Voltage	Timing Range (sec)	Schematic	For use with...	Catalog Number	Price
	**ON delay** May not be combined with Auxiliary Contact Blocks, Suppressors or Voltage Indicator.	24V AC/DC	Selectable: 0.05 – 1 0.5 – 10 5 – 100		DILA DILM7 – 32 DILMP20	**DILM32-XTEE11(RA24)**	**157**
		100 – 130V AC				**DILM32-XTEE11(RAC130)**	**157**
		200 – 240V AC				**DILM32-XTEE11(RAC240)**	**157**
	**OFF delay** May not be combined with Auxiliary Contact Blocks, Suppressors or Voltage Indicator.	24V AC/DC	0.05 – 1		DILA DILM7 – 32 DILMP20	**DILM32-XTED11-1(RA24)**	**175**
			0.5 – 10			**DILM32-XTED11-10(RA24)**	**175**
			5 – 100			**DILM32-XTED11-100(RA24)**	**175**
		100 – 130V AC	0.05 – 1			**DILM32-XTED11-1(RAC130)**	**175**
			0.5 – 10			**DILM32-XTED11-10(RAC130)**	**175**
			5 – 100			**DILM32-XTED11-100(RAC130)**	**175**
		200 – 240V AC	0.05 – 1			**DILM32-XTED11-1(RAC240)**	**175**
			0.5 – 10			**DILM32-XTED11-10(RAC240)**	**175**
			5 – 100			**DILM32-XTED11-100(RAC240)**	**175**
Transparent Cover							
	Snap-mounts onto the Timing Module to prevent tampering				DILM32-XTE...	**DILM32-XTEPLH**	**9**

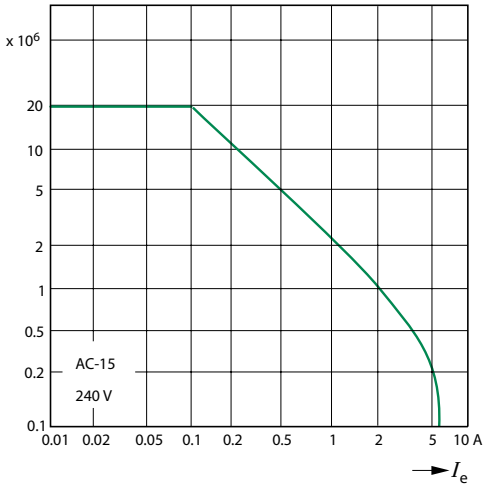
Miscellaneous Accessories

Accessory	Description	For use with...	Catalog Number	Price
Fast On Connectors				
	• 1 x (6.3 x 0.8) mm or 2 x (2.8 x 0.8) mm • For auxiliary contact and coil connections • Use connectors with insulated sleeves. • Standard quantity: 100	DILER DILEM DILM185 – DILM1000	**BT483**	**0.80**
Jumper				
	• For parallel connection of auxiliary contacts • Not insulated • Standard quantity: 100	DILER DILEM	**BT480**	**0.80**
Transparent Cover				
	• Cover snap-mounts onto the relay to prevent tampering • Protection to IP40 • Cannot be used with any externally mounted components	DILER DILEM	**HDILE**	**6.00**

❶ Suppressors, voltage indicators and electronic timers cannot be mounted simultaneously; Electronic timers cannot be combined with Auxiliary Contact Blocks.

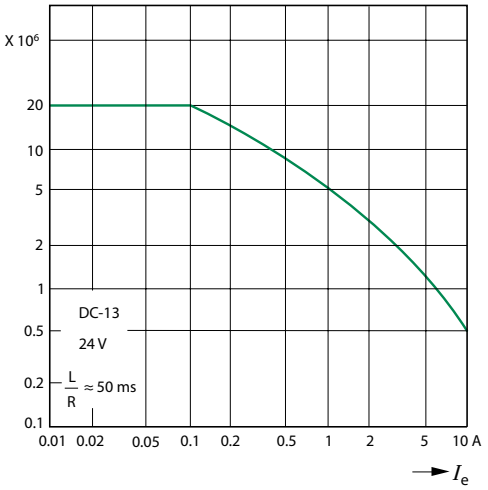
DILA (AC-15)

Component lifespan (operations)
I_e = Rated operational current



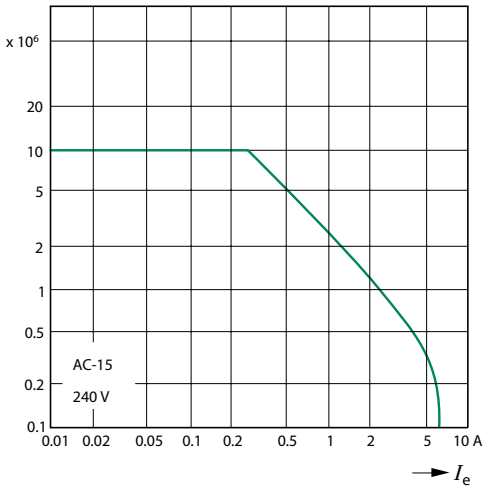
DILA (DC-13) ❶

Component lifespan (operations)
I_e = Rated operational current



DILER (AC-15)

Component lifespan (operations)
I_e = Rated operational current

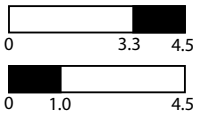


❶ Making and breaking conditions to DC-13; time constant as stated on page 135.

Travel Diagrams for Control Relays

The diagrams show the closing and opening of the auxiliary contacts of control relays and auxiliary contacts at no load. Tolerances are not taken into consideration.

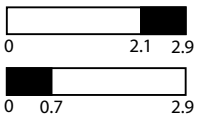
DILA-... AC Relay



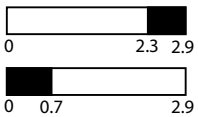
+ DILA-XHI... Auxiliary Contact

+ DILA-XHIV... Auxiliary Contact (EM/LB)

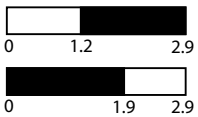
DILA-... DC Relay



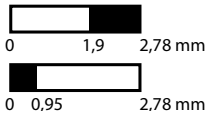
+ DILA-XHI... Auxiliary Contact



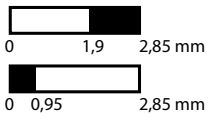
+ DILA-XHIV... Auxiliary Contact (EM/LB)



DILER-... AC Relay

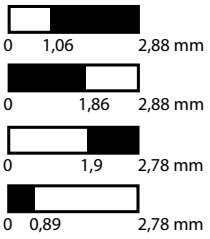


DILER-... DC Relay



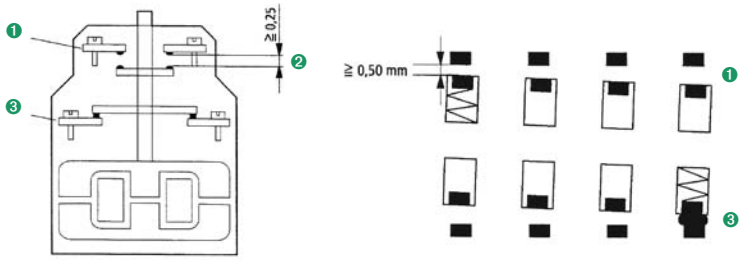
...DILE Auxiliary Contact

...DDILE Auxiliary Contact

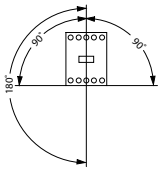
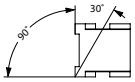


Positively Guided Contacts

Both DIL A and DIL ER relays are designed with positively guided contacts. The break contact will not close if the make contact becomes welded.



❶ Break contact.
❷ ≥0.25 mm with double-break contacts.
❸ Make contact.

Control Relays			DILA	DILA-XHI	DILER	...(D)DILE
General						
Standards				IEC/EN 60947, VDE 0660, UL, CSA		
Lifespan, mechanical						
AC operated	Ops	[x 10^6]	20	10	10	10
DC operated	Ops	[x 10^6]	20	10	20	20
Maximum operating frequency	Ops/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 °C	-25...60 °C	-25...50 °C	-25...50 °C
		[°F]	*-13...140 °F*	*-13...140 °F*	*-13...122 °F*	*-13...122 °F*
Enclosed		[°C]	-25...40 °C	-25...40 °C	-25...40 °C	-25...40 °C
		[°F]	*-13...104 °F*	*-13...104 °F*	*-13...104 °F*	*-13...104 °F*
Storage		[°C]	-40...80 °C	-40...80 °C	–	–
		[°F]	*-40...176 °F*	*-40...176 °F*	–	–
Mounting position					As required, except vertically A1/A2 at the bottom	As required, except vertically A1/A2 at the bottom
Mechanical shock resistance (IEC/EN 60068-2-27) half-sinusoidal shock 10 ms						
Base unit with auxiliary contact module						
Make contact		[g]	7	7	10	10
Break contact		[g]	5	5	8	8
Degree of protection			IP20	IP20	IP20	IP20
Protection against direct contact from the front when actuated by a perpendicular test finger (IEC 536)				Finger and back-of-hand proof		
Weight						
AC operated		[kg]	0.23	0.23	0.17	–
DC operated		[kg]	0.28	0.28	0.2	–
Terminal capacity						
Solid		[mm^2]	1 x (0.75 – 4) 2 x (0.75 – 2.5)	1 x (0.75 – 4) 2 x (0.75 – 2.5)	1 x (0.75 – 2.5) 2 x (0.75 – 2.5)	1 x (0.75 – 2.5) 2 x (0.75 – 2.5)
Flexible with ferrule		[mm^2]	1 x (0.75 – 2.5) 2 x (0.75 – 2.5)	1 x (0.75 – 2.5) 2 x (0.75 – 2.5)	1 x (0.75 – 1.5) 2 x (0.75 – 1.5)	1 x (0.75 – 1.5) 2 x (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
Tightening torque		[Nm]	1.2	1.2	1.2	1.2
Tools						
Pozidrive screwdriver		[Size]	2	2	2	2
Standard screwdriver		[mm]	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6

Control Relays				DILA	DILA-XHI	DILER	...(D)DILE
Contacts							
Interlocked opposing 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	[A]	6	6	6	4
	380/415 V	I_e	[A]	4	3	3	2
	500 V	I_e	[A]	1.5	–	1.5	1.5
DC-13 ❶							
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	–	–	–
Contact reliability (at U_e = 24 V DC, U_{min} = 17 V, I_{min} = 5.4 mA)	Fault probability		[λ]		$<10^8$, < one failure in 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, max-fuse ❷							
	500 V		[A gG/gL]	10	10	6	6
	500 V		[A fast]	–	–	10	10
Current heat losses at load of I_{th}							
AC operated			[W]	0.3	0.3	0.2	0.2
DC operated			[W]	0.3	0.3	0.3	0.3

❶ Making and breaking conditions to DC-13, time constant as stated.
❷ Short circuit protection maximum fuse.

Control Relays			DILA	DILA-XHI	DILER	...(D)DILE
Magnet Systems						
Pick-up and drop-out values						
AC operated						
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Pick-up	[x U_C]	0.8 – 1.1	–	0.8 – 1.1	–
Dual-frequency coil 50/60 Hz	Pick-up	[x U_C]	0.8 – 1.1	–	0.85 – 1.1	–
DC operated ❶						
Pick-up voltage	Pick-up	[x U_C]	0.8 – 1.1	–	0.85 – 1.3	–
At 24 V: without auxiliary contact module (40 °C)	Pick-up	[x U_C]	0.7 – 1.3	–	0.7 – 1.3	–
Power consumption						
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Pick-up	[VA]	24	–	25	–
	Pick-up	[W]	19	–	22	–
Single-voltage coil 50 Hz and dual-voltage coil 50 Hz, 60 Hz	Sealing	[VA]	3.4	–	4.6	–
	Sealing	[W]	1.2	–	1.3	–
Dual-frequency coil 50/60 Hz at 50 Hz	Pick-up	[VA]	27	–	30	–
	Pick-up	[W]	22	–	26	–
Dual-frequency coil 50/60 Hz at 50 Hz	Sealing	[VA]	4.2	–	5.4	–
	Sealing	[W]	1.4	–	1.6	–
Dual-frequency coil 50/60 Hz at 60 Hz	Pick-up	[VA]	25	–	29	–
	Pick-up	[W]	25	–	24	–
Dual-frequency coil 50/60 Hz at 60 Hz	Sealing	[VA]	3.3	–	3.9	–
	Sealing	[W]	1.2	–	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]	≤ 21	–	14 – 21	–
AC operated make contact opening delay		[ms]	≤ 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, make contact opening delay		[ms]	≤ 12	–	15 – 25	–
DC operated with auxiliary contact module, max. closing delay		[ms]	–	–	70	70

❶ Pure DC voltage or three-phase bridge rectifier or full wave rectifier with smoothing capacitor (or filter).

Amplifier Module; Timing Relay				ETS4-VS3 Amplifier Module	DILM32-XTE Timing Relay
General					
Standards				UL, CSA, IEC/EN 60947, VDE 0660	UL, CSA, DIN EN61812, IEC/EN 60947, VDE 0660
Lifespan, mechanical					
AC operated		Ops	[x 10^6]	–	3
DC operated		Ops	[x 10^6]	30	3
Maximum operating frequency	220V 230V	Ops	[x 10^6]	72000	–
Climatic proofing				Damp heat, constant to IEC 60068-2-78; Damp heat, cyclical, to IEC 60068-2-30	
Ambient temperature					
Storage			[°C / °F]	10 °C / *50 °F*	-40…80 °C / *-40…176 °F*
Open			[°C / °F]	-25…60 °C / *-13…140 °F*	-25…60 °C / *-13…140 °F*
Enclosed			[°C / °F]	-25…45 °C / *-13…113 °F*	-25…40 °C / *-13…104 °F*
Mounting position				As required	As required, not suspended
Mechanical shock resistance (IEC/EN 60068-2-27)					
Half-sinusoidal shock 20 ms					
NO contact			[g]	10	–
Half-sinusoidal shock 10 ms					
NO contact			[g]	10	6
NC contact			[g]	8	6
Degree of protection				IP20	IP20
Protection against direct contact when actuated from the front (IEC 536)				Finger and back-of-hand proof	
Weight			[kg (oz)]	0.09 (3.17)	0.09 (3.17)
Terminal capacity					
Solid			[mm^2]	1 x (0.75 – 2.5) 2 x (0.75 – 2.5) ❶	1 x (0.75 – 2.5) 2 x (0.75 – 2.5)
Flexible with ferrule			[mm^2]	1 x (0.75 – 2.5) 2 x (0.75 – 1.5) ❶	1 x (0.75 – 1.5) 2 x (0.75 – 1.5)
Solid or stranded			[AWG]	16 – 14	18 – 14
Terminal screw				M3.5	M3.5
Tools					
Pozidrive screwdriver			[Size]	2	2
Standard screwdriver			[mm]	0.8 x 5.5 1 x 6	0.8 x 5.5 1 x 6
Tightening torque			[Nm]	1.2	1.2
Contacts					
Rated impulse withstand voltage		U_{imp}	[V AC]	6000	6000
Overvoltage category/pollution degree				III/3	III/3
Rated insulation voltage					
UL / CSA			[V AC]	250	–
IEC		U_i	[V AC]	440	600
Rated operational voltage		U_e	[V AC]	440	400

❶ Use only equal cross sections.

Amplifier Module; Timing Relay				ETS4-VS3 Amplifier Module	DILM32-XTE Timing Relay
Contacts *(continued)*					
Rated operational current					
UL / CSA (general purpose) B300		I_e	[A]	10	
AC-15	220/240 V	I_e	[A]	2	please inquire
	380/415 V	I_e	[A]	2	please inquire
DC-13 ❶					
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 in 100 million operations	–
Conventional thermal current		I_{th}	[A]	6	6
Component lifespan					
AC-15					
230V, I_e =0.1A		Ops	[x 10^6]	7	–
230V, I_e =1.2A		Ops	[x 10^6]	1	–
Short-circuit rating without welding					
Short-circuit protection, max-fuse					
500 V			[A gG/gL]	–	6
500 V			[A fast]	4	–
Magnet Systems					
Voltage tolerance					
AC operated	Pick-up		[x U_c]	–	0.8 – 1.1
DC operated	Pick-up		[x U_c]	0.85 – 1.2	0.7 – 1.2
Power consumption					
AC	Pick-up		[VA]	–	2
DC	Pick-up		[W]	–	1.8
DC operated	Pull in -Sealing		[W]	0.6	0
Duty factor			[% DF]	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			[Ops/h]	–	3600
6 A / 250V			[Ops/h]	9000	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		t_u	[ms]	–	10

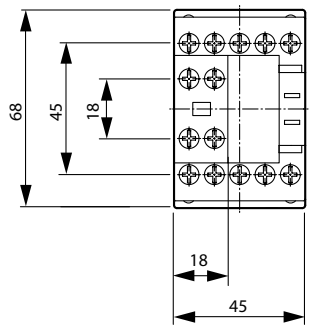
❶ Making and breaking conditions to DC-13, time constant as stated.

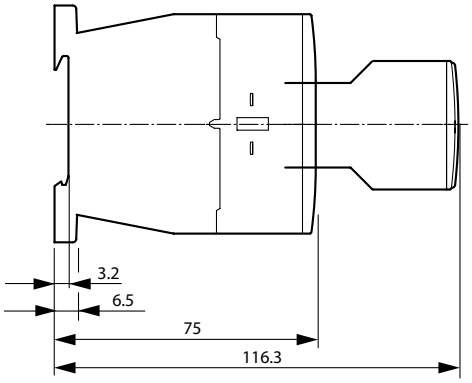
C
Control Relays

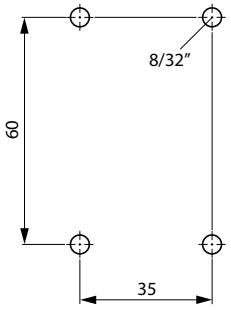
DILA Control Relays

DILA-...+ DILA-XHI...

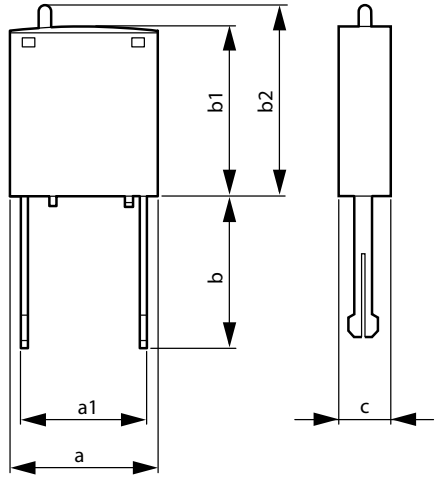
Dimensions are in millimeters.
Not intended for manufacturing purposes.





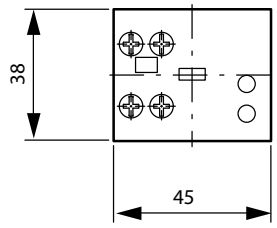


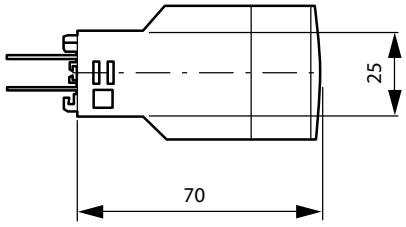
DILM12-XSP...



dimension	DILM12-XSPR... DILM12-XSPV...
a	25
a1	9.2
b	25.9
b1	28
b2	~ 32
c	9

DILM32-XTE...

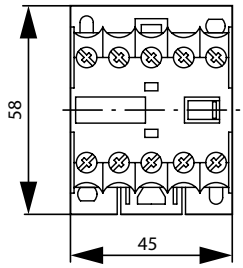


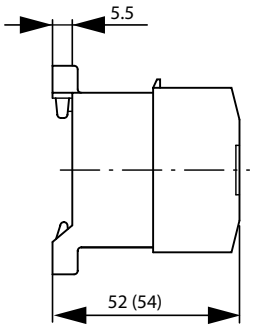


DILER Control Relays

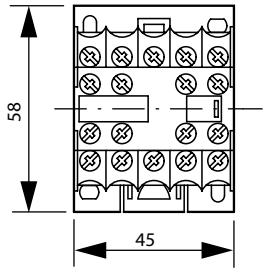
Dimensions are in millimeters.
Not intended for manufacturing purposes.

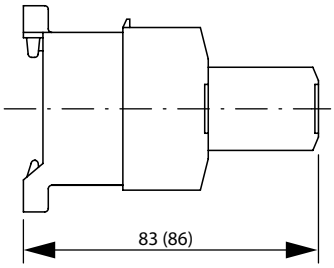
DILER-...

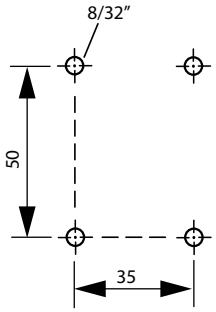




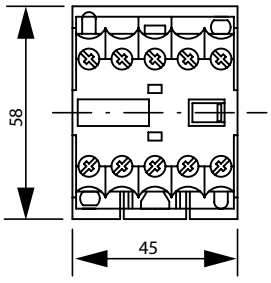
DILER-... + ...(D)DILE

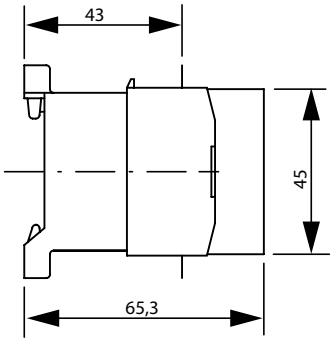




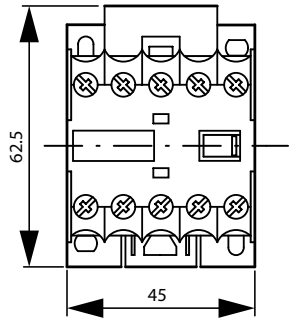


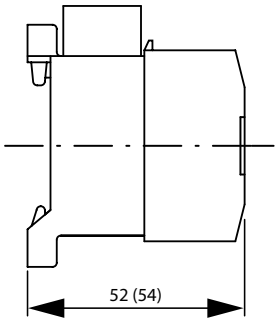
DILER-... + HDILE





DILER-... + RCDILE; DILER-... + VGDILE





SYST M

pre-assembled enclosed starters

MOELLER

SYST-M starters from Moeller

Economical, ready-made starters to 50HP *(at 460V)*

SYST M

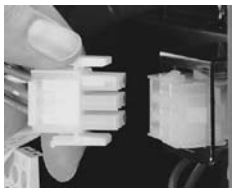
Moeller has designed a complete line of enclosed, ready-made starters, called SYST-M, that you can install and use immediately. The entire SYST-M family is designed to be fully modular, so availability is generally from stock. The line is designed for a variety of applications to 50HP (@460V), including basic non-reversing and reversing starters. Both configurations are also available in fused combination designs.

Ready-made and rugged

At the heart of every SYST-M starter is the new Moeller DIL M contactor (with 120V coil) and a ZB overload relay. These starter components are the newest and most modern on the market today.

All starters are housed in a heavy duty NEMA 1 enclosure with back plate, grounding terminals and knockouts.

Plug-in speed and convenience



The essence of SYST-M starters is their modularity. All starters come equipped with plug-in connectors for pilot device modules and optional control power transformers. This not only allows us to build and ship the starters quickly, but allows you to change or add components in a snap.

A variety of control

Pre-assembled pilot device kits come in many configurations, from simple 2-position and H-O-A selector switches, to START/STOP pushbuttons with a pilot light. A manual RESET button is also pre-installed on the front cover. All pilot devices are selected from Moeller's exceptional RMQ-Titan line that is rugged and good looking.

Optional accessories available

Optional Control Power Transformers (CPT) are available with both a fused primary and secondary. There are four incoming voltages to choose, including 208, 240, 480 and 600. Output voltage is 120V to match the contactor. You may also choose a Remote Adaptor for use when the starter is being controlled from a remote location. As with all SYST-M components, all accessories are pre-wired with plug-in technology that installs in seconds.

- > Pre-assembled, ready made starters to 50HP *(at 460V)*
- > Non-reversing, reversing, combination and non-combination models available
- > Heavy duty NEMA 1 enclosure for rugged performance
- > Many pilot device control options available
- > Convenient plug-in technology

- Ready made, economical AC, magnetic, non-reversing starters in a heavy duty NEMA 1 enclosure
- SYST-M starters are in-stock for immediate delivery, or available in 24 hour turn
- Convenient plug-in technology allows quick-build and quick-change of components
- All SYST-M starters utilize Moeller contactors. . . the newest and most modern on the market today.

SYST-M Base Unit ❷ – Full Voltage, Non-Reversing, Non-Combination

Maximum UL / CSA Horsepower Ratings				Auxiliary Contacts		Dimensions *centimeters (inches)*				
Three Phase										
200 V	230 V	460 V	575 V	NO	NC	H	W	D	Catalog Number	Price ❷
3	3	10	10	1	0	24 (9.5)	17 (6.7)	15 (5.9)	**SYSTM-STR-10**	**143**
10	10	20	25	1	0	24 (9.5)	17 (6.7)	15 (5.9)	**SYSTM-STR-20**	**211**
20	25	50	60	1	1	40 (15.8)	23 (9.1)	20 (7.9)	**SYSTM-STR-30**	**440**

SYST-M Base Units Include ❶ ❷

- NEMA 1 heavy gauge enclosure with back plate, lift-off cover and knockouts
- Moeller DILM contactor (mounted) with 120V coil
- Plug-in quick connector for pilot device module (must order Pilot Device module for a complete SYST-M starter)
- Quick connector for an optional Control Power Transformer (CPT)
- Reset push button pre-mounted on cover
- Pre-installed grounding terminals

D
Pre-assembled Enclosed Starters

Ordering Instructions

1 Locate the desired SYST-M base unit → **2** Select appropriate overload relay on page D7 → **3** Select pilot device control kit on pages D8 – D9 → **4** Select optional accessories on page D10

❶ All SYST-M starters are designed in a heavy duty NEMA 1 enclosure with 120V AC control. Moeller offers a wide array of custom control panels for any application. If other starter types, enclosures or coil voltages are required, please contact your Moeller representative for a custom solution.

❷ Must order an overload relay and pilot device module for a complete SYST-M starter.

- Ready made, economical, AC reversing starters, in a heavy duty NEMA 1 enclosure
- SYST-M starters are in-stock for immediate delivery, or available in 24 hour turn
- Convenient plug-in technology allows quick-build and quick-change of components
- All SYST-M starters utilize Moeller contactors. . . the newest and most modern on the market today.

SYST-M Base Unit ❷ – Full Voltage, Reversing, Non-Combination

Maximum UL / CSA Horsepower Ratings				Auxiliary Contacts		Dimensions *centimeters (inches)*				
Three Phase										
200 V	230 V	460 V	575 V	NO	NC	H	W	D	Catalog Number	Price ❷
3	3	10	10	1	1	24 (9.5)	17 (6.7)	15 (5.9)	**SYSTM-STR-10R**	**295**
10	10	20	25	1	1	40 (15.8)	23 (9.1)	20 (7.9)	**SYSTM-STR-20R**	**500**
20	25	50	60	1	1	40 (15.8)	23 (9.1)	20 (7.9)	**SYSTM-STR-30R**	**720**

SYST-M Base Units Include ❶ ❷

- NEMA 1 heavy gauge enclosure with back plate, lift-off cover and knockouts
- Moeller DILM reversing contactors (mounted) with 120V coil
- Plug-in quick connector for pilot device module (must order Pilot Device module for a complete SYST-M starter)
- Quick connector for an optional Control Power Transformer (CPT)
- Reset push button pre-mounted on cover
- Pre-installed grounding terminals

D
Pre-assembled Enclosed Starters

Ordering Instructions

1. Locate the desired SYST-M base unit
2. Select appropriate overload relay on page D7
3. Select pilot device control kit on pages D8 – D9
4. Select optional accessories on page D10

❶ All SYST-M starters are designed in a heavy duty NEMA 1 enclosure with 120V AC control. Moeller offers a wide array of custom control panels for any application. If other starter types, enclosures or coil voltages are required, please contact your Moeller representative for a custom solution.

❷ Must order an overload relay and pilot device module for a complete SYST-M starter.

- Ready made, economical AC, combination fusible (HRC 1J), non-reversing starters in a heavy duty NEMA 1 enclosure
- SYST-M starters are in-stock for immediate delivery, or available in 24 hour turn
- Convenient plug-in technology allows quick-build and quick-change of components
- All SYST-M starters utilize Moeller contactors. . . the newest and most modern on the market today.

SYST-M Base Unit ❷ – Full Voltage, Non-Reversing, Combination, Fusible (HRC 1J)

Maximum UL / CSA Horsepower Ratings				Fused Disconnect (A)	Auxiliary Contacts		Dimensions *centimeters (inches)*			Catalog Number	Price ❷
Three Phase											
200 V	230 V	460 V	575 V		NO	NC	H	W	D		
3	3	10	10	30	1	0	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-11C	473
7½	7½	15	20	30	1	0	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-21C	508
10	10	20	25	60	1	0	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-22C	589
10	15	30	40	60	1	1	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-32C	617
20	25	50	60	100	1	1	60 (23.6)	50 (19.7)	20 (7.9)	SYSTM-STR-33C	914

SYST-M Base Units Include ❶❷

- NEMA 1 heavy gauge enclosure with back plate, lift-off cover and knockouts
- Moeller DILM contactor (mounted) with 120V coil
- Fused disconnect (HRC 1J) with rotary handle (fuses not included)
- Plug-in quick connector for pilot device module (must order Pilot Device module for a complete SYST-M starter)
- Quick connector for an optional Control Power Transformer (CPT)
- Reset push button pre-mounted on cover
- Pre-installed grounding terminals

D
Pre-assembled Enclosed Starters

Ordering Instructions

1. Locate the desired SYST-M base unit
2. Select appropriate overload relay on page D7
3. Select pilot device control kit on pages D8 – D9
4. Select optional accessories on page D10

❶ All SYST-M starters are designed in a heavy duty NEMA 1 enclosure with 120V AC control. Moeller offers a wide array of custom control panels for any application. If other starter types, enclosures or coil voltages are required, please contact your Moeller representative for a custom solution.

❷ Must order an overload relay and pilot device module for a complete SYST-M starter.

- Ready made, economical AC reversing, combination fusible (HRC 1J) starters in a heavy duty NEMA 1 enclosure
- Popular SYST-M starters are in-stock for immediate delivery, or available in 24 hour turn
- Convenient plug-in technology allows quick-build and quick-change of components
- All SYST-M starters utilize Moeller contactors. . . the newest and most modern on the market today.

SYST-M Base Unit ❷ – Full Voltage, Reversing, Combination, Fusible (HRC 1J)

Maximum UL / CSA Horsepower Ratings				Fused Disconnect (A)	Auxiliary Contacts		Dimensions *centimeters (inches)*			Catalog Number	Price ❷
Three Phase											
200 V	230 V	460 V	575 V		NO	NC	H	W	D		
3	3	10	10	30	1	1	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-11CR	678
7½	7½	15	20	30	1	1	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-21CR	703
10	10	20	25	60	1	1	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-22CR	757
10	15	30	40	60	1	1	60 (23.6)	27 (10.6)	20 (7.9)	SYSTM-STR-32CR	1064
20	25	50	60	100	1	1	60 (23.6)	50 (19.7)	20 (7.9)	SYSTM-STR-33CR	1200

SYST-M Base Units Include ❶❷

- NEMA 1 heavy gauge enclosure with back plate, lift-off cover and knockouts
- Moeller DILM reversing contactors (mounted) with 120V coil
- Fused disconnect (HRC 1J) with rotary handle (fuses not included)
- Plug-in quick connector for pilot device module (must order Pilot Device module for a complete SYST-M starter)
- Quick connector for an optional Control Power Transformer (CPT)
- Reset push button pre-mounted on cover
- Pre-installed grounding terminals

D
Pre-assembled Enclosed Starters

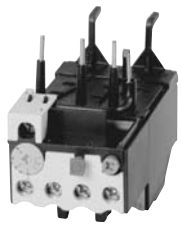
Ordering Instructions

1. Locate the desired SYST-M base unit
2. Select appropriate overload relay on page D7
3. Select pilot device control kit on pages D8 – D9
4. Select optional accessories on page D10

❶ All SYST-M starters are designed in a heavy duty NEMA 1 enclosure with 120V AC control. Moeller offers a wide array of custom control panels for any application. If other starter types, enclosures or coil voltages are required, please contact your Moeller representative for a custom solution.

❷ Must order an overload relay and pilot device module for a complete SYST-M starter.

Direct Mount ZB Thermal Overload Relays for SYST-M Starters

Overload Relay	Adjustable Setting Range	Auxiliary Contacts NO	Auxiliary Contacts NC	For use with SYST-M starter...	Short-Circuit Protection (Max 600V AC) ❶ Fuses (A)	Short-Circuit Protection (Max 600V AC) ❶ Circuit Breaker (A)	Catalog Number	Price
	0.1 – 0.16	1	1	All series "10"	1	25	**ZB12-0,16**	**72**
	0.16 – 0.24	1	1		1	25	**ZB12-0,24**	**72**
	0.24 – 0.4	1	1		1	25	**ZB12-0,4**	**72**
	0.4 – 0.6	1	1		1	25	**ZB12-0,6**	**72**
	0.6 – 1	1	1		3	25	**ZB12-1**	**72**
	1 – 1.6	1	1		6	25	**ZB12-1,6**	**72**
	1.6 – 2.4	1	1		6	25	**ZB12-2,4**	**72**
	2.4 – 4	1	1		15	25	**ZB12-4**	**72**
	4 – 6	1	1		20	25	**ZB12-6**	**72**
	6 – 10	1	1		40	25	**ZB12-10**	**72**
	9 – 12	1	1		60	30	**ZB12-12**	**72**
	12 – 16	1	1		60	30	**ZB12-16**	**72**
	10 – 16	1	1	All series "20"	60	30	**ZB32-16**	**76**
	16 – 24	1	1		90	30	**ZB32-24**	**76**
	24 – 32	1	1		125	40	**ZB32-32**	**96**
	24 – 40	1	1	All series "30"	125	125	**ZB65-40**	**118**
	40 – 57	1	1		200	150	**ZB65-57**	**130**
	50 – 65	1	1		200	150	**ZB65-65**	**130**

Ordering Instructions

1 Locate the desired SYST-M base unit

2 Select appropriate overload relay on this page

3 Select pilot device control kit on pages D8 – D9

4 Select optional accessories on page D10

❶ Observe the maximum permissible fuse of the contactor with direct device mounting.

Pilot Device Kits for Non-reversing SYST-M Starters

Kit	Description	Catalog Number	Price
	• One green START pushbutton • One red STOP pushbutton	SYSTM-SS	51
	• One green START pushbutton • One red STOP pushbutton • One red pilot light with ON legend plate (LED element with 85 – 264V operating range)	SYSTM-SS/PL	82
	• One red pilot light with ON legend plate (LED element with 85 – 264V operating range)	SYSTM-PL	43
	• 2-position OFF-ON selector switch	SYSTM-00	39

Kit	Description	Catalog Number	Price
	• 2-position OFF-ON selector switch • One red pilot light with ON legend plate (LED element with 85 – 264V operating range)	SYSTM-00/PL	69
	• 3-position HAND-O-AUTO selector switch	SYSTM-HOA	44
	• 3-position HAND-O-AUTO selector switch • One red pilot light with ON legend plate (LED element with 85 – 264V operating range)	SYSTM-HOA/PL	75

D
Pre-assembled Enclosed Starters

Ordering Instructions

1. Locate the desired SYST-M base unit
2. Turn to page D7 to select appropriate overload relay
3. Select pilot device control kit on this page
4. Turn to page D10 to select optional accessories

Pilot Device Kit for Reversing SYST-M Starters

Kit	Description	Catalog Number	Price
	• One black FORWARD pushbutton • One black REVERSE pushbutton • One red STOP pushbutton, raised	**SYSTM-SFR**	**92**
	• 3-position FWD-O-REV selector switch with thumb grip handle	**SYSTM-FOR**	**48**
	• 3-position FWD-O-REV selector switch with thumb grip handle • Two red pilot lights (LED element with 85 – 264V operating range): - one with FORWARD legend plate - one with REVERSE legend plate	**SYSTM-FOR/PL/PL**	**104**

Ordering Instructions

1. Locate the desired SYST-M base unit
2. Turn to page D7 to select appropriate overload relay
3. Select pilot device control kit on this page
4. Turn to page D10 to select optional accessories

Control Transformers *(optional)*

Transformer	VA Rating (VA)	Maximum Primary Fuse (A)	Maximum Secondary Fuse (A)	Primary Voltage	Secondary Voltage	Catalog Number	Price
	50	1 1/8	6/10	208	120	SYSTM-T50-208/120-NA	113
	50	1	6/10	240	120	SYSTM-T50-240/120-NA	
	50	1/2	6/10	480	120	SYSTM-T50-480/120-NA	
	50	4/10	6/10	600	120	SYSTM-T50-600/120-NA	

Remote Control Adaptor *(optional)*

Adaptor	Description	Catalog Number	Price
	5-wire plug-in adaptor. For use when the starter is controlled from a remote location only.	SYSTM-RA	10

MOELLER

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