PKZ circuit breakers
DIL contactors

MOELLER
SERIES

WIN-WIN with Push-in: PKZ & DIL

Product overview Push-in technology

EATON
Powering Business Worldwide

PKZ & DIL, the win-win effect: faster and more cost-effective at the same time

Eaton's Moeller series xStart range is being upgraded with Push-in technology. This new tool-free connection technology makes wiring even faster, safer and more efficient. The PKZ and DIL solution with Push-in technology offers maximum reliability, can be used anywhere in the world and integrates seamlessly into existing control panel designs.

Trusted technology just got even better.

Eaton has more than 100 years of experience and extensive know-how in the field of motor protection and contactors. Since we launched the xStart range in 2004, we have sold more than 100 million units. No one else has more experience and expertise in this field.

Like the rest of the xStart modular system, the products with Push-in technology are developed in Germany and approved for global use.

Who needs screws? The trick with the click.

The Push-in terminals enable safe and easy control-panel wiring with just one click. With our modular system and wide range of accessories, you'll always find the right solution for your application.

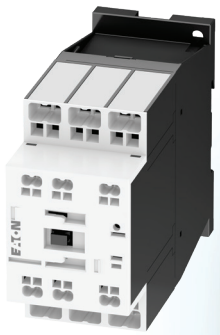
Thanks to their compact, space-saving size, the devices can be easily integrated into existing control cabinet designs.

Combining new technology and proven wiring concepts.

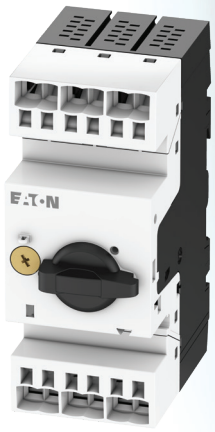
Our Push-in range even includes devices that combine screw and Push-in terminals for use with a 3-phase busbar link.

To sum up, the Push-in technology makes your work noticeably easier! Integrating the devices into existing systems is easy and cost-effective - anywhere in the world.

DILA contactor relay
DILM7 contactor



DILM17 contactors



Motor-protective circuit breaker

Future-proof your control panel the simple way - with Eaton's Push-in range.

Technicians and purchasers alike love the new xStart range. Wiring has never been more efficient, thanks to Eaton's tried and tested PKZ and DIL range and our cutting-edge push-in technology, which eliminates the need for tools. You too can benefit from this win-win effect by future-proofing your control panel the simple way.

Eaton.com/win-win

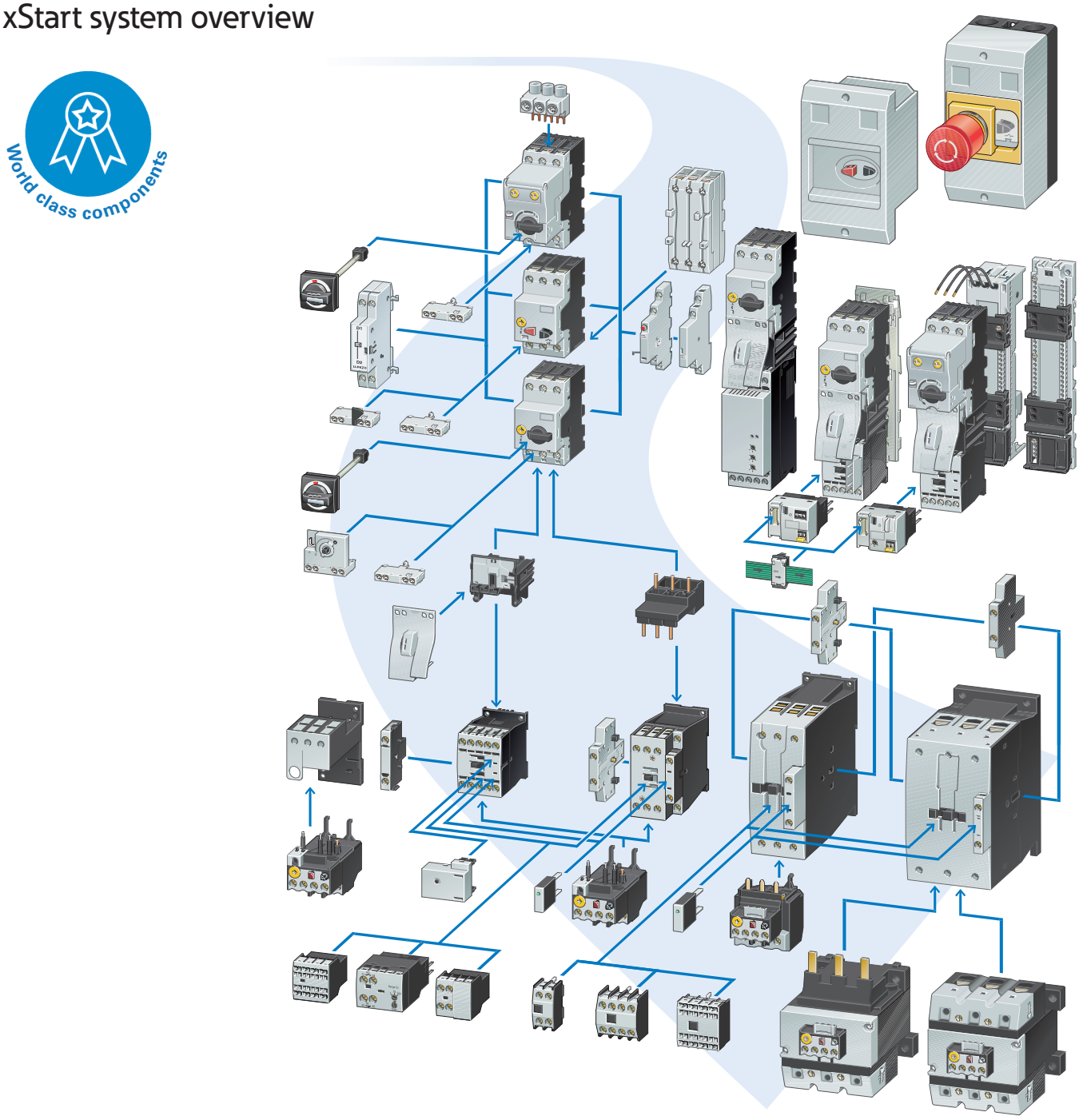
Interested? Find out more

Eaton.com/win-win

Future-proof your control panel the simple way - with xStart.

Eaton has been developing motor starters for over 100 years and our products are used around the world. From the beginning, our ideas and innovations have made a major contribution to advances in motor protection and switching. Given our long tradition in the field, we've turned motor protection into one of our core areas of expertise, which we continue to develop to this day.

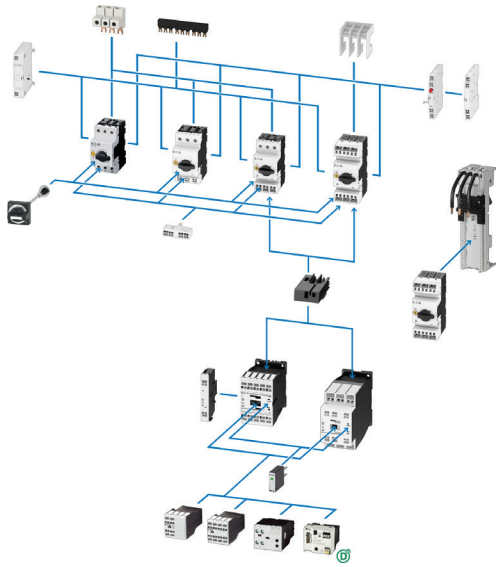
xStart system overview



System expansion with Push-in technology

Simplify & optimize the installation and design of your machines and systems by using Eaton's tool-free Push-in technology, which can be used anywhere in the world without restrictions.

With the simplified wiring process, establishing the connection is up to 50 % faster (compared to screw terminals), thereby increasing the competitiveness of your products.



The Moeller series - a 100-year legacy

User-friendly

Faster commissioning

- Tool-free installation
- Simplified installation thanks to the easy Push-in technology
- Time savings of 50 % compared to screw terminals

Future-proof connection

A future-proof wiring system

- Using the next generation of cage clamp terminals
- Can be automatically installed by robots

24
Availability

Improved machines and systems

- High level of vibration and shock resistance, i.e. no need to retighten the cable connections after transport, immediately ready for use
- Maintenance-free over the entire service life

Seamless integration

Easy integration

- No need to adapt the control panel design
- Screw-/Push-in combination device for use with a 3-phase busbar link

DIL contactors

The DIL contactors are powerful, efficient and versatile and can be combined with our entire product range. The DIL contactors are suitable for global use and cover the entire output range, from mini contactor relays (up to 7 A) all the way to vacuum contactors (up to 3,180 A).

Through the expansion of our product range and the use of the new Push-in technology we've made wiring even easier, faster and safer.

We've extended the rated current of the contactors with Push-in connection technology to 38 A (AC-3), and they can be controlled remotely via SmartWire-DT.

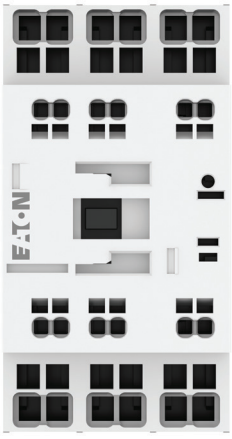
Protecting and switching IE3 motors

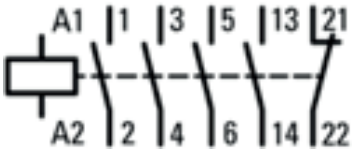
The latest update of the ErP Directive requires increasingly energy-efficient electric motors, with important implications for their design and protection systems. Eaton's contactors, motor-protective circuit breakers and motor-starter combinations meet the challenges associated with protecting and switching IE3 motors.

Half the number of products for easy warehousing (1 + 1 = ½)

The base unit of the contactors with screw technology from our proven xStart range previously contained either a NC or a NO auxiliary contact. The contactors up to 18.5 kW with Push-in technology are now equipped with two auxiliary contacts (1 NC contact and 1 NO contact) as standard. The footprint, however, remains the same.

While retaining the same small footprint, we've made the contactors more versatile and equipped them for universal use. This reduces the number of different models and simplifies project planning, warehousing and spare parts management.





Existing accessories can simply be re-used!

Plug and play

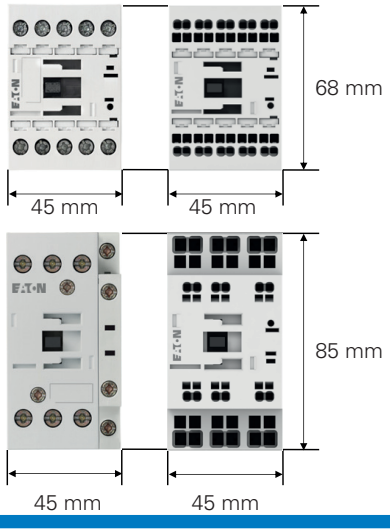
The existing accessories from the xStart range can be easily connected to the new, screw-free devices.

Whether it's auxiliary contacts, suppressor circuits, SmartWire-DT modules or plug-in wiring accessories up to 15.5 A - almost all the available accessories can continue to be used.

New contactor, new size? - No same dimensions

Dimensions

The new contactors with Push-in technology have the same footprint as the contactors with conventional screw terminals and can therefore easily be installed in existing systems. This also simplifies the planning of new systems, as the dimensions are identical.



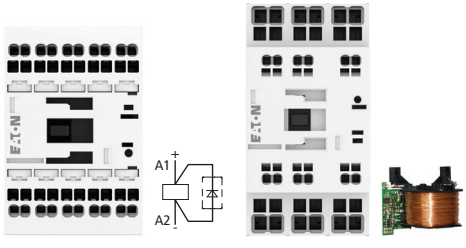
Energy savings made easy, thanks to the integrated suppressor circuit

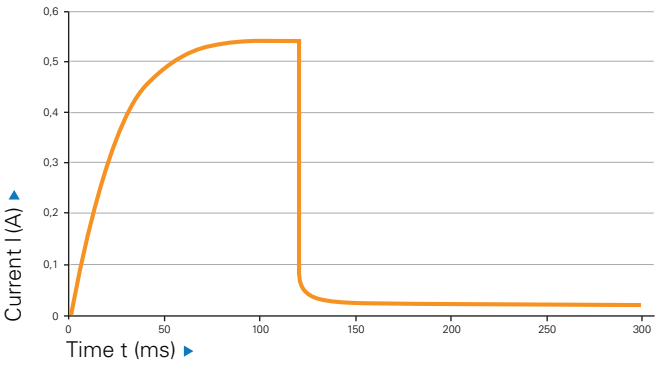
Energy Efficient

The suppressor circuit is already integrated in every DC operated contactor from Eaton. The contactors can thus be controlled directly from a PLC. Power contactors up to 18.5 kW also feature a coil mechanism for reducing the holding power.

DC / PLC controlled

Integrated suppressor circuit





PKZ motor-protective circuit breakers

Eaton's fuseless motor-protective circuit breakers combine short-circuit and overload protection in a single device. The 15 different models of the electromechanical PKZM0 cover the current range from 0.1 to 32 A. The motor-protective circuit breakers are fully compatible with Eaton's DIL contactor series and are therefore ideally suited for use in motor-starter combinations. No matter whether integrated auxiliary switch, release indicator, voltage release or door coupling rotary handles, the accessories can be used universally and can be combined with all PKZ and PKE motor-protective circuit-breakers with screw connection technology or push-in connection technology.

In order to maintain the familiar power supply of motor-protective circuit breakers using 3-phase busbar links, the Push-in range also includes additional models with screw terminals for supplying power and Push-in terminals for connecting the loads (PKZM0...-SPI).

Designation	PKZMO-PI	PKZMO-SPI32	PKZMO-SPI16
Connection technology supply side load side	Push-in (6 mm²) Push-in (6 mm²)	Screw terminal Push-in (6 mm²)	Screw terminal Push-in (2.5 mm²)
Rated current range	0.1 ... 32 A	0.1 ... 32 A	0.1 ... 16 A
Power supply by means of 3-phase busbar link	–	Yes	Yes
Suitable for motor-starter combinations	Yes	Yes	–
Special features	100 % tool-free installation	Highly versatile	Extremely small footprint, identical in size to the PKZMO with screw connection

Existing accessories can simply be re-used!

- Easy integration into existing systems such as the MSFS motor starter feeder system or SASY 60i
- Existing accessories can simply be re-used, no conversion necessary

Suitable for motor-starter combinations

Wiring kits for motor starters up to 32 A

- Mechanical connecting element
- Pre-assembled connecting cables

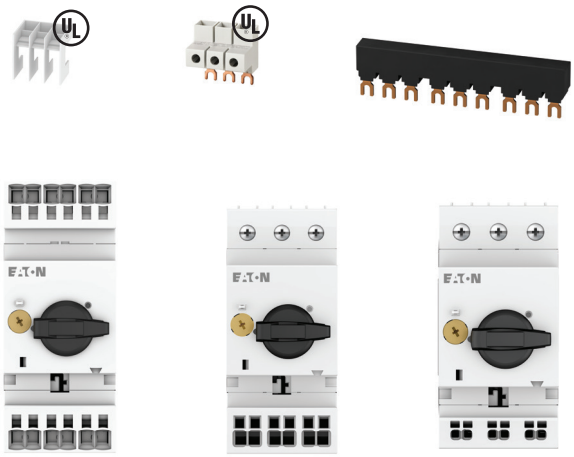
Suitable for use with

- DOL starters up to 7.5 kW / 15 kW
- Reversing starter combinations up to 15 kW

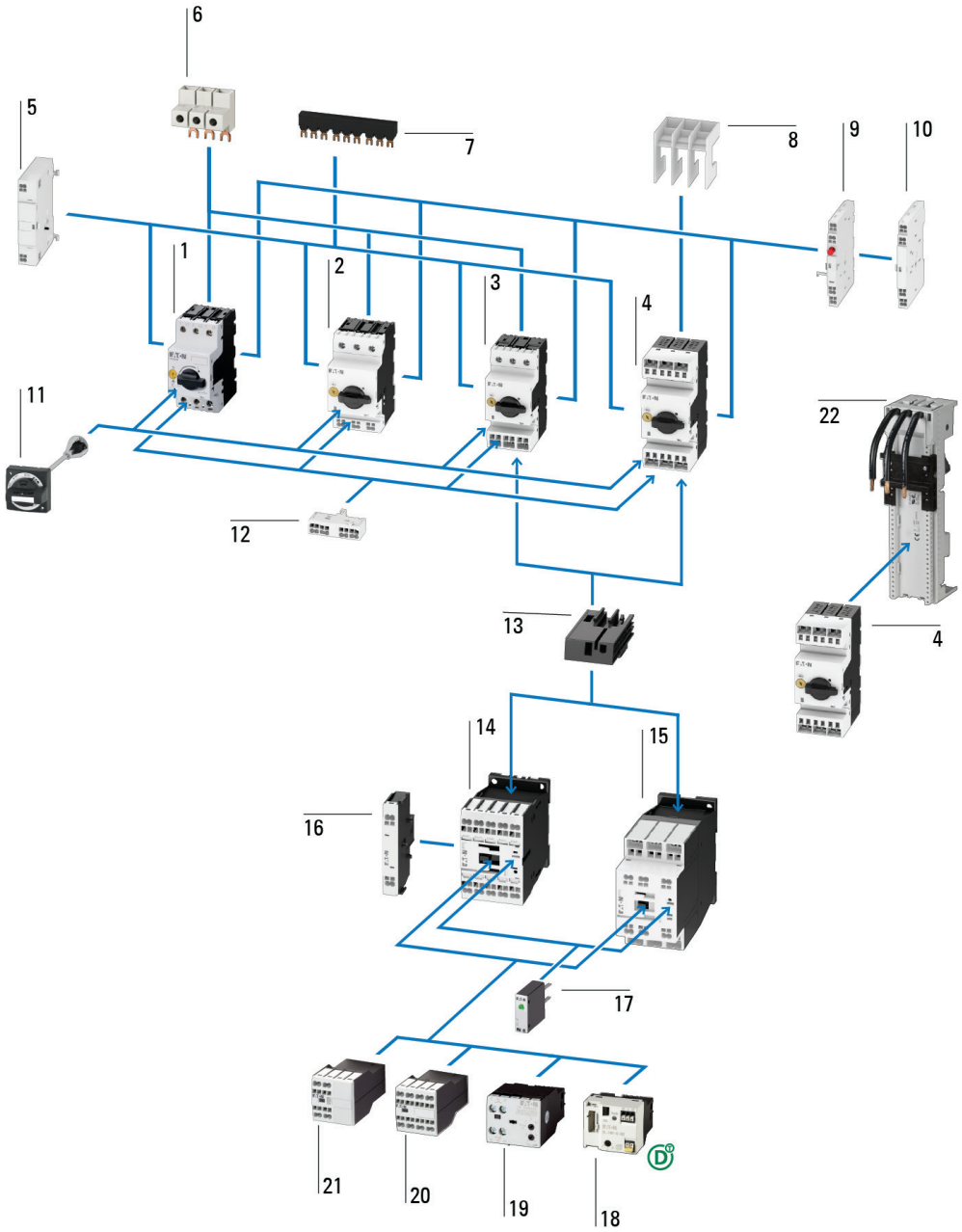
Integration into existing control panel designs for global export - Eaton makes it possible!

Our Push-in range boasts a winning combination model that integrates both screw and Push-in connection in a single device.

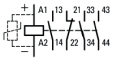
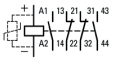
This means that the new devices can also be easily incorporated into existing control panel designs.



System overview



1 PKZM0 motor-protective circuit breaker up to 32 A – screw terminal
2 PKZM0 motor-protective circuit breaker up to 16 A – screw/Push-in terminal
3 PKZM0 motor-protective circuit breaker up to 32 A – screw/Push-in terminal
4 PKZM0 motor-protective circuit breaker up to 32 A – Push-in terminal
5 Undervoltage / shunt release – Push-in terminal
6 IEC/UL power supply terminal for three-phase busbar link – screw terminal
7 Three-phase busbar link – screw terminal
8 PKZM0…-PI phase isolator / UL Type E and Type F applications
9 Trip indicator for overload and short circuit – Push-in terminal
10 Side-mounting auxiliary contact – Push-in terminal
11 Door-coupling rotary handle
12 Front-mounting auxiliary contact – Push-in terminal
13 Mechanical connection module for motor starters
14 DILA contactor relay / DILM contactors up to 7.5 kW – Push-in terminal
15 DILM contactor up to 18.5 kW – Push-in terminal
16 Side-mounting auxiliary contact – Push-in terminal
17 Coil protection circuits
18 SmartWire-DT networking module
19 Electronic timer module – screw terminal
20 Front-mounting auxiliary contact, 4-pole – Push-in terminal
21 Front-mounting auxiliary contact, 2-pole – Push-in terminal
22 Adapter for motor-protective circuit breakers / motor starters

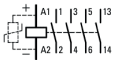
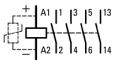
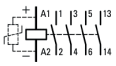
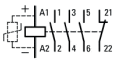
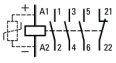
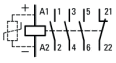
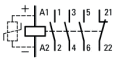
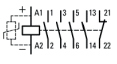
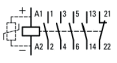
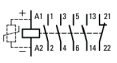
	Current AC15 220 V 240 V	Contacts NO = normally open NO_e = NO early-make NC = normally closed NC_L = NC late-break	Contact sequence	AC operation without suppressor circuit 230 V 50 Hz, 240 V 60 Hz Part no. Article no.	AC operation without suppressor circuit 110 V 50 Hz, 120 V 60 Hz Part no. Article no.	DC operation with suppressor circuit 24 V DC Part no. Article no.
	4	4 NO		**DILA-40(230V50HZ,240V60HZ)-PI** 199204	**DILA-40(110V50HZ,120V60HZ)-PI** 199205	**DILA-40(24VDC)-PI** 199208
	4	3 NO 1 NC		**DILA-31(230V50HZ,240V60HZ)-PI** 199209	**DILA-31(110V50HZ,120V60HZ)-PI** 199210	**DILA-31(24VDC)-PI** 199213
	4	2 NO 2 NC		**DILA-22(230V50HZ,240V60HZ)-PI** 199214	**DILA-22(110V50HZ,120V60HZ)-PI** 199215	**DILA-22(24VDC)-PI** 199218

DIL..-XHI... auxiliary contact

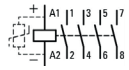
	4	2 NO		**DILA-XHI20-PI** 199313	Can be combined with: DILA..(-PI) DILM7..(-PI) up to DILM15..(-PI) DILM8..-PI up to DILM14..-PI DILM17..(-PI) up to DILM38..(-PI) DILMP20..(-PI) up to DILMP45..(-PI) DILL.. DILMF8.. up to DILMF14.. DILMF17.. up to DILMF32..	
	4	1 NO 1 NC		**DILA-XHI11-PI** 199314		
	4	2 NC		**DILA-XHI02-PI** 199315		
	4	1 NO_E 1 NC_L		**DILA-XHIV11-PI** 199316		
	4	4 NO		**DILA-XHI40-PI** 199317		
	4	3 NO 1 NC		**DILA-XHI31-PI** 199318		
	4	2 NO 2 NC		**DILA-XHI22-PI** 199319		
	4	1 NO 3 N/C		**DILA-XHI13-PI** 199320		
	4	4 N/C		**DILA-XHI04-PI** 199321		
	4	1 NO, 1 NO_E 1 NC, 1 NC_L		**DILA-XHIV22-PI** 199322		
	4	1 NO		**DILA-XHI10-S-PI** 199323	Can be combined with: DILA..(-PI) DILM7..(-PI) up to DILM15..(-PI)	
	4	1 NC		**DILA-XHI01-S-PI** 199324		
	4	1 NO 1 NC		**DILM12-XHI11-PI** 199456	Can be combined with: DILM7-10..(-PI) DILM9-10..(-PI) DILM12-10..(-PI) DILM15-10..(-PI) DILMP20..(-PI)	
	4	- 2 NC		**DILM12-XHI02-PI** 199457		
	4	2 NO 2 NC		**DILM12-XHI22-PI** 199458		
	4	3 NO 1 NC		**DILM12-XHI31-PI** 199459		
	4	1 NO 1 NC		**DILM32-XHI11-PI** 199309	Can be combined with: DILM7-10..(-PI) DILM9-10..(-PI) DILM12-10..(-PI) DILM15-10..(-PI) DILMP20..(-PI) DILM17-11..(-PI) DILM25-11..(-PI) DILM32-11..(-PI) DILM38-11..(-PI) DILMP32..(-PI) DILMP45..(-PI)	
	4	- 2 NC		**DILM32-XHI02-PI** 199310		
	4	2 NO 2 NC		**DILM32-XHI22-PI** 199311		
	4	3 NO 1 NC		**DILM32-XHI31-PI** 199312		

Notes: AC-operated basic devices are also available for 24 V 50/60 Hz, 230 V 50/60 Hz, 42 V 50 Hz and 48 V 60 Hz

Contactors from 3 kW to 18.5 kW

	Current AC3 380 V 400 V A	kW	Contacts NO = normally open NC = normally closed	Contact sequence	AC operation without suppressor circuit 230 V 50 Hz, 240 V 60 Hz **Part no.** Article no.	AC operation without suppressor circuit 110 V 50 Hz, 120 V 60 Hz **Part no.** Article no.	DC operation with suppressor circuit 24 V DC **Part no.** Article no.
Contactors from 3 kW to 7.5 kW - frame size 1							
	7	3	1 NO -		**DILM7-10(230V50HZ,240V60HZ)-PI** 199219	**DILM7-10(110V50HZ,120V60HZ)-PI** 199220	**DILM7-10(24VDC)-PI** 199223
	9	4	1 NO -		**DILM9-10(230V50HZ,240V60HZ)-PI** 199229	**DILM9-10(110V50HZ,120V60HZ)-PI** 199230	**DILM9-10(24VDC)-PI** 199233
	12	5.5	1 NO -		**DILM12-10(230V50HZ,240V60HZ)-PI** 199239	**DILM12-10(110V50HZ,120V60HZ)-PI** 199240	**DILM12-10(24VDC)-PI** 199243
	15.5	7.5	1 NO -		**DILM15-10(230V50HZ,240V60HZ)-PI** 199249	**DILM15-10(110V50HZ,120V60HZ)-PI** 199250	**DILM15-10(24VDC)-PI** 199253
	7	3	- 1 NC		**DILM7-01(230V50HZ,240V60HZ)-PI** 199224	**DILM7-01(110V50HZ,120V60HZ)-PI** 199225	**DILM7-01(24VDC)-PI** 199228
	9	4	- 1 NC		**DILM9-01(230V50HZ,240V60HZ)-PI** 199234	**DILM9-01(110V50HZ,120V60HZ)-PI** 199235	**DILM9-01(24VDC)-PI** 199238
	12	5.5	- 1 NC		**DILM12-01(230V50HZ,240V60HZ)-PI** 199244	**DILM12-01(110V50HZ,120V60HZ)-PI** 199245	**DILM12-01(24VDC)-PI** 199248
	15.5	7.5	- 1 NC		**DILM15-01(230V50HZ,240V60HZ)-PI** 199254	**DILM15-01(110V50HZ,120V60HZ)-PI** 199255	**DILM15-01(24VDC)-PI** 199258
Contactors from 3 kW to 18.5 kW - frame size 2							
	8	3	1 NO 1 NC		**DILM8-11 (230V50HZ,240V60HZ)-PI** 199264	**DILM8-11(110V50HZ,120V60HZ)-PI** 199265	**DILM8-11(RDC24)-PI** 199268
	11	4	1 NO 1 NC		**DILM11-11(230V50HZ,240V60HZ)-PI** 199269	**DILM11-11(110V50HZ,120V60HZ)-PI** 199270	**DILM11-11(RDC24)-PI** 199273
	14	5.5	1 NO 1 NC		**DILM14-11(230V50HZ,240V60HZ)-PI** 199274	**DILM14-11(110V50HZ,120V60HZ)-PI** 199275	**DILM14-11(RDC24)-PI** 199278
	17	7.5	1 NO 1 NC		**DILM17-11(230V50HZ,240V60HZ)-PI** 199279	**DILM17-11(110V50HZ,120V60HZ)-PI** 199280	**DILM17-11(RDC24)-PI** 199283
	25	11	1 NO 1 NC		**DILM25-11(230V50HZ,240V60HZ)-PI** 199284	**DILM25-11(110V50HZ,120V60HZ)-PI** 199285	**DILM25-11(RDC24)-PI** 199288
	32	15	1 NO 1 NC		**DILM32-11(230V50HZ,240V60HZ)-PI** 199289	**DILM32-11(110V50HZ,120V60HZ)-PI** 199290	**DILM32-11(RDC24)-PI** 199293
	38	18.5	1 NO 1 NC		**DILM38-11(230V50HZ,240V60HZ)-PI** 199294	**DILM38-11(110V50HZ,120V60HZ)-PI** 199295	**DILM38-11(RDC24)-PI** 199298

Notes: AC-operated basic devices are also available for 24 V 50/60 Hz, 230 V 50/60 Hz, 42 V 50 Hz and 48 V 60 Hz.

	Current			AC operation with suppressor circuit 230 V 50 Hz, 240 V 60 Hz	AC operation with suppressor circuit 110 V 50 Hz, 120 V 60 Hz	DC operation with suppressor circuit 24 V DC
	AC1					
	A at 40°C	**A** at 60°C	Contact sequence	**Part no.** Article no.	**Part no.** Article no.	**Part no.** Article no.
DILMP 22 A, 4-pole - frame size 1						
	22	20		**DILMP20(230V50HZ,240V60HZ)-PI** 199259	**DILMP20(110V50HZ,120V60HZ)-PI** 199260	**DILMP20(24VDC)-PI** 199263
DILMP up to 45 A, 4-pole - frame size 2						
	32	28		**DILMP32-11(230V50HZ,240V60HZ)-PI** 199299	**DILMP32-11(110V50HZ,120V60HZ)-PI** 199300	**DILMP32-11(RDC24)-PI** 199303
	45	39		**DILMP45-11(230V50HZ,240V60HZ)-PI** 199304	**DILMP45-11(110V50HZ,120V60HZ)-PI** 199305	**DILMP45-11(RDC24)-PI** 199308

Notes: AC-operated DILMP basic devices are also available for 24 V 50/60 Hz, 42 V 50 Hz and 48 V 60 Hz.

Contactor accessories

	For use with	**Part no.** Article no.	Std. pack
Star-delta wiring kit, includes star point bridge			
Main power wiring for star-delta combination			
	DILM7/9/12/15-10..(-PI) mains contactor DILM7/9/12/15-01..(-PI) delta contactor DILM7/9/12/15-01..(-PI) star contactor	**DILM12-XSL** 283130	1 unit
	DILM17/25/32-11..-PI mains contactor DILM17/25/32-11..-PI delta contactor DILM17/25/32-11..-PI star contactor	**DILM32-XSL-PI** 199461	
Reversing wiring kits			
Main power wiring for reversing combination			
	DILM7-01..(-PI) DILM9-01..(-PI) DILM12-01..(-PI)	**DILM12-XRL** 283108	1 unit
	DILM17-11..-PI DILM25-11..-PI DILM32-11..-PI	**DILM32-XRL-PI** 199460	
Mechanical interlock			
	DILA..(-PI) DILM7..(-PI) - DILM15..(-PI) DILMP20..(-PI)	**DILM12-XMV** 281196	1 unit
	DILM17-11..PPI DILM25-11..PPI DILM32..(-PI)	**DILM32-XMV-PI** EP-400166	
Connector			
To mechanically link contactor relays in combinations with a contactor distance of 0 mm			
	DILA..(-PI) DILM7..(-PI) - DILM38..(-PI)	**DILM32-XVB** 281227	50 units
SmartWire-DT contactor modules			
For connecting contactors to SmartWire-DT One module is needed for each contactor.			
 Notifications: switch state of the contactor, status of the digital inputs 1 and 2, contactor control commands	DILA..(-PI) DILM7..(-PI) - DILM38..(-PI) DILMP..(-PI) MSC-D(R)-..(24VDC)(-PI)	**DIL-SWD-32-001** 118560	5 units
 Notifications: switch state of the contactor, status of the digital inputs 1 and 2, 1-0-A switch contactor control commands		**DIL-SWD-32-002** 118561	

PKZM0 motor-protective circuit breakers

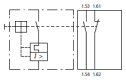
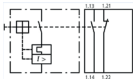
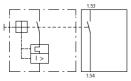
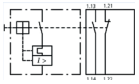
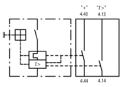
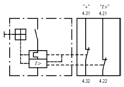
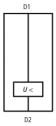
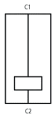
Max. load rating	Max. rated uninterrupted current	Setting range	Push-in terminals / Push-in terminals*	Screw terminal / Push-in terminal* (6 mm²)	Screw terminal / Push-in terminal* (2.5 mm²)
		Overload release			
AC-3 [kW]	I_u	I_r	**Part no.**	**Part no.**	**Part no.**
380 V/400 V/415 V	A	A	Article no.	Article no.	Article no.
Type of coordination: 1 and 2					
-	0.16	0.1 - 0.16	**PKZM0-0,16-PI** 199148	**PKZM0-0,16-SPI32** 199189	**PKZM0-0,16-SPI16** 199177
0.06	0.25	0.16 - 0.25	**PKZM0-0,25-PI** 199149	**PKZM0-0,25-SPI32** 199190	**PKZM0-0,25-SPI16** 199178
0.09	0.4	0.25 - 0.4	**PKZM0-0,4-PI** 199150	**PKZM0-0,4-SPI32** 199191	**PKZM0-0,4-SPI16** 199179
0.12	0.63	0.4 - 0.63	**PKZM0-0,63-PI** 199151	**PKZM0-0,63-SPI32** 199192	**PKZM0-0,63-SPI16** 199180
0.25	1	0.63 - 1	**PKZM0-1-PI** 199152	**PKZM0-1-SPI32** 199193	**PKZM0-1-SPI16** 199181
0.55	1.6	1 - 1.6	**PKZM0-1,6-PI** 199153	**PKZM0-1,6-SPI32** 199194	**PKZM0-1,6-SPI16** 199182
0.75	2.5	1.6 - 2.5	**PKZM0-2,5-PI** 199154	**PKZM0-2,5-SPI32** 199195	**PKZM0-2,5-SPI16** 199183
1.5	4	2.5 - 4	**PKZM0-4-PI** 199155	**PKZM0-4-SPI32** 199196	**PKZM0-4-SPI16** 199184
2.2	6.3	4 - 6.3	**PKZM0-6,3-PI** 199156	**PKZM0-6,3-SPI32** 199197	**PKZM0-6,3-SPI16** 199185
4	10	6.3 - 10	**PKZM0-10-PI** 199157	**PKZM0-10-SPI32** 199198	**PKZM0-10-SPI16** 199186
5.5	12	8 - 12	**PKZM0-12-PI** 199158	**PKZM0-12-SPI32** 199199	**PKZM0-12-SPI16** 199187
7.5	16	12 - 16	**PKZM0-16-PI** 199159	**PKZM0-16-SPI32** 199200	**PKZM0-16-SPI16** 199188
9	20	16 - 20	**PKZM0-20-PI** 199160	**PKZM0-20-SPI32** 199201	
12.5	25	20 - 25	**PKZM0-25-PI** 199161	**PKZM0-25-SPI32** 199202	
15	32	25 - 32	**PKZM0-32-PI** 199162	**PKZM0-32-SPI32** 199203	

Notes: * The PKZM0..-PI and PKZM0-...-SPI32 motor-protective circuit breakers can be used to assemble motor starter combinations.
The PKZM0-...-SPI16 and the SPI32 can be used for power supply via a BK25/3-PKZ0(-E) supply terminal and a three-phase busbar link.

Transformer-protective circuit breaker (short-circuit release [I_{rm}]= 20 x I_u)

0.16	0.1 - 0.16	**PKZM0-0,16-T-PI** 199163
0.25	0.16 - 0.25	**PKZM0-0,25-T-PI** 199164
0.4	0.25 - 0.4	**PKZM0-0,4-T-PI** 199165
0.63	0.4 - 0.63	**PKZM0-0,63-T-PI** 199166
1	0.63 - 1	**PKZM0-1-T-PI** 199167
1.6	1 - 1.6	**PKZM0-1,6-T-PI** 199168
2.5	1.6 - 2.5	**PKZM0-2,5-T-PI** 199169
4	2.5 - 4	**PKZM0-4-T-PI** 199170
6.3	4 - 6.3	**PKZM0-6,3-T-PI** 199171
10	6.3 - 10	**PKZM0-10-T-PI** 199172
12	8 - 12	**PKZM0-12-T-PI** 199173
16	12 - 16	**PKZM0-16-T-PI** 199174
20	16 - 20	**PKZM0-20-T-PI** 199175
25	20 - 25	**PKZM0-25-T-PI** 199176

Motor-protective circuit breaker accessories

	Contact configuration NO = normally open NC = normally closed	Contact diagram	Part no. Article no.	For use with	Std. pack
Front-mounting auxiliary contacts for motor-protective circuit breakers					
	1 NO 1 NC		**NHI-E2-11-PKZ0-PI** EP-401015	PKZM0..(-PI)(-SPI32) PKZM0-..-T(-PI)	5 units
	1 NO 1 NC		**NHI-B2-11-PKZ0-PI** EP-401016		
	1 NO -		**NHI-E2-10-PKZ0-PI** EP-401017		
Lateral auxiliary contacts for motor-protective circuit breakers					
	1 NO 1 NC		**NHI11-PKZ0-PI** 199328	PKZM0..(-PI)(-SPI32) PKZM0-..-T(-PI)	5 units
Trip-indicating auxiliary contacts for motor-protective circuit breakers					
	2 x 1 NO -		**AGM2-10-PKZ0-PI** 199329	PKZM0..(-PI)(-SPI32) PKZM0-..-T(-PI)	2 units
	- 2 x 1 NC		**AGM2-01-PKZ0-PI** 199330		
Undervoltage releases					
			**U-PKZ0(230V50HZ)-PI** 199334	PKZM0..(-PI)(-SPI32) PKZM0-..-T(-PI)	2 units
Shunt releases					
			**A-PKZ0(230V50HZ)-PI** 199339	PKZM0..(-PI)(-SPI32) PKZM0-..-T(-PI)	2 units
			A-PKZ0(24VDC)-PI 199336		
Type E phase isolators					
			**LSA-PKZ0-E-PI** 199341	PKZM0..-PI	5 units
Wiring kits for motor-starter combinations					
			**PKZM0-XDM12-PI** 199463	DOL starters up to 7.5 kW	1 unit
			**PKZM0-XRM12-PI** 199464	Reversing starters up to 7.5 kW	
			PKZM0-XDM32-PI 199465	DOL starters up to 15 kW	
			PKZM0-XRM32-PI 199466	Reversing starters up to 15 kW	
Mechanical connector					
			**PKZM0-XDM32M-PI** 199462	PKZM0..-PI(-SPI32) + DILM7..-PI - DILM38..-PI	1 unit

	Residual current circuit breakers Quantity	Length mm	Unit width mm	Part no. Article no.	Notes	Std. pack
Supply terminals						
	-	-	-	**BK25/3-PKZ0** 032720	For use with: PKZM0-.. , PKZM0..-SPI16, PKZM0..-SPI32 touch-safe, for three-phase busbar links U_e = 690 V, I_u = 63 A / I_u = 60 A (BK25/3-PKZ0-E) for conductor cross-sections: 2.5 - 25 mm² stranded 2.5 - 16 mm² flexible with ferrule	5 units
	-	-	-	**BK25/3-PKZ0-E** 262518		
B3...-PKZ0 three-phase busbar links						
	for PKZM0-..(-SPI16, -SPI32) without lateral auxiliary contacts or voltage releases					
	2	90	45	**B3.0/2-PKZ0** 063961	for parallel power supply of several motor-protective circuit breakers	10 units
	3	135	45	**B3.0/3-PKZ0** 232289	touch-safe, short-circuit proof, Ue=690 V, Iu=63 A	
	4	180	45	**B3.0/4-PKZ0** 063960		
	5	225	45	**B3.0/5-PKZ0** 232290		
	for PKZM0-.. (-SPI16, -SPI32) with one lateral auxiliary switch or one trip indicator mounted on the right					
	2	99	45 + 9	**B3.1/2-PKZ0** 044945	for parallel power supply of several motor-protective circuit breakers	10 units
	3	153	45 + 9	**B3.1/3-PKZ0** 044946	touch-safe, short-circuit proof, Ue=690 V, Iu=63 A	
	4	207	45 + 9	**B3.1/4-PKZ0** 044947		
	5	261	45 + 9	**B3.1/5-PKZ0** 044948		
	for PKZM0-.. (-SPI16, -SPI32) with one lateral auxiliary switch or one trip indicator mounted on the right, or with one voltage release mounted on the left					
	2	108	45 + 18	**B3.2/2-PKZ0** 063963	for parallel power supply of several motor-protective circuit breakers	10 units
	4	234	45 + 18	**B3.2/4-PKZ0** 063959	touch-safe, short-circuit proof, Ue=690 V, Iu=63 A	
Shroud for unused terminals						
	touch-safe to cover unused terminals on the B3...-PKZ0 three-phase busbar link					
				H-B3-PKZ0 032721		20 units

Power supply adapter

	Rated operational voltage	Cable dimensions	Adapter width	DIN rail	Part no.		
	Ue [V]	mm²/AWG	mm	Quantity	Article no.	For use with	Std. pack
Power supply adapter for SASY60i busbar system							
For motor starters with a rated operational current of max. 32 A							
	690	4 / 12	45	1	**BBA0-25-PI** 199467	DOL starter PKZM0..-PI + DILM7 (9) (12) (15) -PI	4 units
	690	4 / 12	90	1	**BBA0R-25-PI** 199468	Reversing starter PKZM0..-PI + 2x DILM7 (9) (12) (15) -PI	2 units
	690	6 / 10	45	1	**BBA0K-32-PI** 199635	Motor-protective circuit-breaker PKZM0-PI	1 unit
	690	6 / 10	45	2	**BBA0-32-PI** 199469	DOL starter PKZM0..-PI + DILM8 (11) (14) (17) (25) (32)..-PI	4 units
	690	6 / 10	90	3	**BBA0R-32-PI** 199470	Reversing starter PKZM0..-PI + 2x DILM8 (11) (14) (17) (25) (32)-PI	2 units
Power supply adapter for the motor starter feeder system							
	690	6 / 10	45	1	**MSFA0-32** 191095	PKZM0, PKZM0..-SPI16, PKZM0..-SPI32	4 units
	690	6 / 10	45	1	**MSFA0-32-PI** 199471	PKZM0..-PI	
	690	4 / 12	45	1	**MSFAD-25-PI** 199472	DOL starter PKZM0..-PI + DILM7(9)(12)(15)-PI	
	690	4 / 12	90	1	**MSFAR-25-PI** 199473	Reversing starter PKZM0..-PI + 2x DILM8(11)(14)(17)(25)(32)-PI	2 units
	690	6 / 10	45	1	**MSFAD-32-PI** 191098	DOL starter PKZM0..-PI + DILM8 (11) (14) (17) (25) (32)-PI	4 units

	Max. load rating	Rated uninterrupted current	Settings range	Motor starter	Motor starter
			Overload release	230 V 50 Hz, 240 V 60 Hz	24 V DC
	AC-3 [kW]	I_u	I_r	**Part no.**	**Part no.**
	380 V/400 V/415 V	A	A	Article no.	Article no.
DOL starter – MSC-D-PI complete devices					
	0.06	0.21	0.16 - 0.25	**MSC-D-0,25-M7(230V50HZ)-PI** 199561	**MSC-D-0,25-M7(24VDC)-PI** 199572
	0.09	0.31	0.25 - 0.4	**MSC-D-0,4-M7(230V50HZ)-PI** 199562	**MSC-D-0,4-M7(24VDC)-PI** 199573
	0.12	0.41 0.6	0.4 - 0.63	**MSC-D-0,63-M7(230V50HZ)-PI** 199563	**MSC-D-0,63-M7(24VDC)-PI** 199574
	0.25	0.8	0.63 - 1	**MSC-D-1-M7(230V50HZ)-PI** 199564	**MSC-D-1-M7(24VDC)-PI** 199575
	0.55	1.1 1.5	1 - 1.6	**MSC-D-1,6-M7(230V50HZ)-PI** 199565	**MSC-D-1,6-M7(24VDC)-PI** 199576
	0.75	1.9	1.6 - 2.5	**MSC-D-2,4-M7(230V50HZ)-PI** 199566	**MSC-D-2,4-M7(24VDC)-PI** 199577
	1.5	2.6 3.6	2.5 - 4	**MSC-D-4-M7(230V50HZ)-PI** 199567	**MSC-D-4-M7(24VDC)-PI** 199578
	2.2	5	4 - 6.3	**MSC-D-6,3-M7(230V50HZ)-PI** 199568	**MSC-D-6,3-M7(24VDC)-PI** 199579
	3 4	6.6 8.5	6.3 - 10	**MSC-D-10-M9(230V50HZ)-PI** 199569	**MSC-D-10-M9(24VDC)-PI** 199580
	5.5	11.3	8 -12	**MSC-D-12-M12(230V50HZ)-PI** 199570	**MSC-D-12-M12(24VDC)-PI** 199581
	7.5	15.2	10 - 16	**MSC-D-16-M15(230V50HZ)-PI** 199571	**MSC-D-16-M15(24VDC)-PI** 199582
	3 4	11.3	6.3 - 10	**MSC-D-10-M11(230V50HZ)-PI** 199605	**MSC-D-10-M11(24VDC)-PI** 199610
	5.5	15.2	8 - 12	**MSC-D-12M14(230V50HZ)-PI** 199606	**MSC-D-12-M14(24VDC)-PI** 199611
	7.5	15.2	10 - 16	**MSC-D-16-M17(230V50HZ)-PI** 199607	**MSC-D-16-M17(24VDC)-PI** 199612
	11	21.7	20 - 25	**MSC-D-25-M25(230V50HZ)-PI** 199608	**MSC-D-25-M25(24VDC)-PI** 199613
	15	29.3	25 - 32	**MSC-D-32-M32(230V50HZ)-PI** 199609	**MSC-D-32-M32(24VDC)-PI** 199614

Notes: The DOL starters (complete devices) consist of a PKZM0...-PI motor-protective circuit breaker and a DILM ...-PI contactor. Further information: for the technical data of the PKZM0...-PI; see page 24, for the technical data of the DILM...-PI, see page 22

Reversing starters – MSC-R-PI complete devices

	0.06	0.21	0.16 - 0.25	**MSC-R-0,25-M7(230V50HZ)-PI** 199583	**MSC-R-0,25-M7(24VDC)-PI** 199594
	0.09	0.31	0.25 - 0.4	**MSC-R-0,4-M7(230V50HZ)-PI** 199584	**MSC-R-0,4-M7(24VDC)-PI** 199595
	0.12 0.18	0.41 0.6	0.4 - 0.63	**MSC-R-0,63-M7(230V50HZ)-PI** 199585	**MSC-R-0,63-M7(24VDC)-PI** 199596
	0.25	0.8	0.63 - 1	**MSC-R-1-M7(230V50HZ)-PI** 199586	**MSC-R-1-M7(24VDC)-PI** 199597
	0.37 0.55	1.1 1.5	1 - 1.6	**MSC-R-1,6-M7(230V50HZ)-PI** 199587	**MSC-R-1,6-M7(24VDC)-PI** 199598
	0.75	1.9	1.6 - 2.5	**MSC-R-2,4-M7(230V50HZ)-PI** 199588	**MSC-R-2,4-M7(24VDC)-PI** 199599
	1.1 1.5	2.6 3.6	2.5 - 4	**MSC-R-4-M7(230V50HZ)-PI** 199589	**MSC-R-4-M7(24VDC)-PI** 199600
	2.2	5	4 - 6.3	**MSC-R-6,3-M7(230V50HZ)-PI** 199590	**MSC-R-6,3-M7(24VDC)-PI** 199601
	4	8.5	6.3 - 10	**MSC-R-10-M9(230V50HZ)-PI** 199591	**MSC-R-10-M9(24VDC)-PI** 199602
	5.5	11.3	8 - 12	**MSC-R-12-M12(230V50HZ)-PI** 199592	**MSC-R-12-M12(24VDC)-PI** 199603
	5.5	11.3	10 - 16	**MSC-R-16-M15(230V50HZ)-PI** 199593	**MSC-R-16-M15(24VDC)-PI** 199604

Notes: The DOL starters (complete devices) consist of a PKZM0 ...-PI motor-protective circuit breaker and a DILM ...-PI contactor. Further information: for the technical data of the PKZM0...-PI, see page 24; for the technical data of the DILM...-PI, see page 22

Breaking capacity PKZM0-...-(S)PI(16/32), PKZM0-...-T-PI with type 1 and 2 coordination

Rated uninterrupted current I_u
Rated conditional short-circuit current I_q IEC/EN 60947-4-1
Rated ultimate short-circuit breaking capacity I_{CU} IEC/EN 60947-2
Rated operational short-circuit breaking capacity I_{CS} IEC/EN 60947-2

	230 V				400 V				440 V				500 V				690 V			
I_U A	I_q kA	I_{CU} kA	I_{CS} kA	A*)	I_q kA	I_{CU} kA	I_{CS} kA	A*)	I_q kA	I_{CU} kA	I_{CS} kA	A*)	I_q kA	I_{CU} kA	I_{CS} kA	A*)	I_q kA	I_{CU} kA	I_{CS} kA	A*)
0.16 - 1	150	150	150	N	150	150	150	N	150	150	150	N	150	150	150	N	150	150	150	N
1.6	150	150	150	N	150	150	150	N	150	150	150	N	150	150	150	N	150	150	150	N
2.5	150	150	150	N	150	150	150	N	150	150	150	N	150	150	150	N	5	5	5	50
4	150	150	150	N	150	150	150	N	150	150	150	N	150	150	150	N	3	3	3	50
6.3	150	150	150	N	150	150	150	N	150	150	150	N	42	42	42	50	3	3	2	50
10	150	150	150	N	150	150	150	N	50	50	50	50	42	42	11	50	3	3	2	50
12	50	50	38	50	50	50	38	50	50	15	12	50	15	15	4	50	3	3	2	50
16	50	50	38	50	50	50	38	50	50	15	15	50	15	15	4	50	3	3	2	50
20	50	50	38	50	50	50	38	50	50	10	3	50	10	3	3	50	3	3	1	50
25	50	50	38	50	50	50	38	50	50	10	3	50	10	3	3	50	3	3	1	50
32	50	40	10	50	50	40	10	50	50	10	3	50	10	3	3	50	3	3	1	50

*) Required back-up fuse, if the short-circuit current exceeds the conditional rated short-circuit current of the devices (I_{CS} is greater than I_q)

Motor-starter combinations

Motor Power				Setting range	Short circuit current ratings				Supply terminal	Motor-protective circuit breaker	Contactor
				Overload release	Short-circuit release	240 V	480 Y/ 277 V[2]	600 Y/ 347 V[2]			
200 V 208 V	230 V 240 V	460 V 480 V	575 V 600 V		instantaneous						
HP	HP	HP	HP	I_r [A]	I_{rm} [A]	kA	kA	kA	Part no.	Part no.	Part no.
PKZM, DILM, BK Type F starter combinations											
				0.1 - 0.16	5	65	65	18	LSA-PKZ0-E-PI (for PKZ...-PI)	PKZM0-0,16-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
				0.16 - 0.25	9	65	65	18		PKZM0-0,25-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
				0.25 - 0.4	6.2	65	65	18		PKZM0-0,4-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
				0.4 - 0.63	9	65	65	18		PKZM0-0,63-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
		1/2	1/2	0.63 - 1	15.5	65	65	18		PKZM0-1-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
		3/4	1	1 - 1.6	24.8	65	65	18		PKZM0-1,6-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
1/2	1/2	1	1 1/2	1.6 - 2.5	38.8	65	65	18		PKZM0-2,5-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
1 3/4	1 3/4	2	3	2.5 - 4	62	65	65	18		PKZM0-4-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
1 1/2	1 1/2	3	5	4 - 6.3	97.7	65	65	18		PKZM0-6,3-(S)PI(16/32)	DILM7-...-PI / DILM8-...-PI
3	3	7 1/2	10	6.3 - 11	155	65	65	18	BK25/3-PKZ0-E (for PKZ...-SPI..)	PKZM0-10-(S)PI(16/32)	DILM9-...-PI / DILM11-...-PI
3	3	7 1/2	10	9 - 12	186	65	65	-		PKZM0-12-(S)PI(16/32)	DILM12-...-PI / DILM14-...-PI
3	5	10	-	10 - 16	248	65	65	-		PKZM0-16-(S)PI(16/32)	DILM17-...-PI
5	-	-	-	16 - 20	310	18	18	-		PKZM0-20-PI	DILM25-...-PI
-	7 1/2	15	-	20 - 25	388	18	18	-		PKZM0-25-PI	DILM25-...-PI

Notes:

IEC devices for world markets ≙ UL/CSA
The setting value Ir of the current scale (depending on the load factor)
SF (service factor) = 1.15 → Ir = 1 x In mot
SF (service factor) = 1.0 → Ir = 0.9 x In mot
Type F starter combinations do not need an upstream protective device.
For use in Canada, the switch must be equipped with an AK-PKZ0.

[1] The motor output must be calculated on the basis of the rated current. Specified values according to NEC Table 430-150.

[2] Suitable for star-point grounded networks

Protection of PVC-insulated cables against thermal overload in the event of a short circuit

The table indicates the minimum conductor cross-sections that are protected by the motor-protective circuit breakers up to their conditional rated short-circuit current I_q

Min. protected cross-section 380 - 415 V 50 Hz CU mm²					Device Part no.
4	2.5	1.5	1	0.75	
■	■	■	■	■	PKZM0-0,16-(S)PI(16/32)
■	■	■	■	■	...
■	■	■	■	■	PKZM0-6,3-(S)PI(16/32)
■	■	■	■		PKZM0-10-(S)PI(16/32)
■	■	■	■		PKZM0-12-(S)PI(16/32)
■	■	■			PKZM0-16-(S)PI(16/32)
■	■	■			PKZM0-20-PI
■	■				PKZM0-25-PI
■	■				PKZM0-32-PI
■	■				PKZM0-32-PI

Technical data - PKZM0-...-PI motor-protective circuit breakers

			PKZM0-...-PI	PKZM0-...-T-PI	PKZM0-...-SPI32	PKZM0-...-SPI16
Max. motor rating						
AC-3						
220 V 230 V 240 V	P	kW	0.06 - 7.5	-	0.06 - 7.5	0.06 - 4
380 V 400 V 415 V	P	kW	0.06 - 15	-	0.06 - 15	0.06 - 7.5
440 V	P	kW	0.06 - 15	-	0.06 - 15	0.06 - 9
500 V	P	kW	0.06 - 22	-	0.06 - 22	0.06 - 9
660 V 690 V	P	kW	0.06 - 30	-	0.06 - 30	0.06 - 12.5
Settings range						
Overload release	I_r	A	0.1 - 32	0.1 - 25	0.1 - 32	0.1 - 16
Short-circuit release	I_{rm}	A	2.4 - 496	2.4 - 437	2.4 - 496	2.4 - 248
General information						
Standards			IEC/EN 60947, VDE 0660, UL, CSA			
Connection cross-sections of push-in terminals						
solid		mm²	1 x (1 - 6), 2 x (1 - 6)			1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible with ultrasonic welded busbar end		mm²	1 x (1 - 10), 2 x (1 - 6)			1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible without ferrule		mm²	1 x (1 - 6), 2 x (1 - 6)			1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible with uninsulated ferrule		mm²	1 x (1 - 6), 2 x (1 - 6)			1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible with ferrule to DIN 46228		mm²	1 x (1 - 6), 2 x (1 - 4)			1 x (0.5 - 1.5), 2 x (0.5 - 1.5)
solid, stranded or flexible		AWG	18 - 8			20 - 14
Stripping length		mm	12			10
Tool for opening the terminal		mm	3.0 x 0.5 slotted screwdriver			
Connection cross-sections of screw terminals						
solid		mm²	-		1 x (1 - 6), 2 x (1 - 6)	1 x (1 - 6), 2 x (1 - 6)
flexible with ferrule to DIN 46228		mm²	-		1 x (1 - 6), 2 x (1 - 6)	1 x (1 - 6), 2 x (1 - 6)
solid, stranded or flexible		AWG	-		18 - 10	18 - 10
Stripping length		mm	-		10	10
Main circuits						
Rated impulse-withstand voltage	U_{imp}	V AC	6000			
Rated operational voltage	U_{imp}	V AC	690			
Current heat loss (3-pole operating temperature)		W	6			
Release						
Temperature compensation						
to IEC/EN 60947, VDE 0660		°C	-5 ... +40			
Operating range		°C	-25 ... +55			
Residual error of the temperature compensation for T > 40 °C			≤ 0.25 %/K			
Setting range of the overload release		x I_u	0.6-1			
Short-circuit release			Basic device, fixed setting: 15.5 x I_u			
Tolerance of the short-circuit release			± 20%			
Phase failure sensitivity			IEC/EN 60947-4-1, VDE 0660 Part 102			

Technical data - DILM(P)-...-PI contactor

Basic devices up to 18.5 kW

			DILM7-...-PI	DILM9-...-PI	DILM12-...-PI	DILM15-...-PI	DILMP20-...-PI
General information							
Standards			IEC/EN 60947, VDE 0660, UL, CSA				
Mechanical service life							
AC-operated	Number of operations	x 10^6	10	10	10	10	10
DC-operated	Number of operations	x 10^6	10	10	10	10	10
Connection cross-section of main circuits							
solid		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with ultrasonic welded busbar end		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible without ferrule		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with uninsulated ferrule		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with ferrule to DIN 46228		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 1.5)				
solid, stranded or flexible		AWG	20 - 14				
Stripping length		mm	10				
Tool for opening the terminal		mm	3.0 x 0.5 slotted screwdriver				
Connection cross-section of auxiliary circuits							
solid		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with ultrasonic welded busbar end		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible without ferrule		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with uninsulated ferrule		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with ferrule to DIN 46228		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 1.5)				
solid, stranded or flexible		AWG	20 - 14				
Stripping length		mm	10				
Tool for opening the terminal		mm	3.0 x 0.5 slotted screwdriver				
Main circuits							
Rated impulse withstand voltage	U_{imp}	V AC	6000	6000	6000	6000	6000
Rated operational voltage	U_e	V AC	690	690	690	690	690
AC							
AC-1							
Conventional thermal current							
3-pole, 50 - 60 Hz							
open							
up to 40 °C	$I_{th} = I_e$	A	22	22	22	22	22
up to 50 °C	$I_{th} = I_e$	A	21	21	21	21	21
up to 55 °C	$I_{th} = I_e$	A	21	21	21	21	21
up to 60 °C	$I_{th} = I_e$	A	20	20	20	20	20
AC-3							
Rated operational current AC-3, 3-pole, 50 - 60 Hz							
open							
220 V 230 V	I_e	A	7	9	12	15.5	12
380 V 400 V	I_e	A	7	9	12	15.5	12
660 V 690 V	I_e	A	4	5	7	9	7
AC-4							
Rated operational current AC-3, 3-pole, 50 - 60 Hz							
open							
220 V 230 V	I_e	A	5	6	7	7	7
380 V 400 V	I_e	A	5	6	7	7	7
660 V 690 V	I_e	A	4	4.5	5	5	5
Power drives							
Voltage tolerance							
AC-operated	Pick-up	x U_c	0.8 - 1.1				
AC-operated	Drop-out	x U_c	0.3 - 0.6				
DC-operated	Pick-up	x U_c	0.8 - 1.1				
DC-operated	Drop-out	x U_c	0.15 - 0.6				

	DILM8-...-PI	DILM11-...-PI	DILM14-...-PI	DILM17-...-PI	DILM25-...-PI	DILM32-...-PI	DILM38-...-PI	DILMP32-...-PI	DILMP45-...-PI
	IEC/EN 60947, VDE 0660, UL, CSA								
	10	10	10	10	10	10	10	10	10
	10	10	10	10	10	10	10	10	10
	1 x (1 - 6), 2 x (1 - 6)								
	1 x (1 - 10), 2 x (1 - 6)								
	1 x (1 - 6), 2 x (1 - 6)								
	1 x (1 - 6), 2 x (1 - 6)								
	1 x (1 - 6), 2 x (1 - 4)								
	18 - 8								
	12								
	3.0 x 0.5 slotted screwdriver								
	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)								
	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)								
	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)								
	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)								
	1 x (0.5 - 1.5), 2 x (0.5 - 1.5)								
	20 - 14								
	10								
	3.0 x 0.5 slotted screwdriver								
	8000	8000	8000	8000	8000	8000	8000	8000	8000
	690	690	690	690	690	690	690	690	690
	40	40	40	40	45	45	45	32	45
	38	38	38	38	43	43	43	30	41
	37	37	37	37	42	42	42	29	40
	35	35	35	35	40	40	40	28	39
	8	11	14	17	25	32	38	17	25
	8	11	14	17	25	32	38	17	25
	4	5	7	12	15	18	22.5	12	15
	8	10	10	10	13	15	15	10	13
	8	10	10	10	13	15	15	10	13
	4	4.5	5	8	10	12	12	8	10
	0.8 - 1.1								
	0.3 - 0.6								
	0.7 - 1.2								
	0.15 - 0.6								

Technical data - DILA-...-PI contactor relay and auxiliary contact modules

			DILM7-...-PI - DILM38-...-PI	DILA-...-PI	DILA-XHI...-PI	DILM12-XHI...-PI	DILM32-XHI...-PI
General information							
Standards			IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA				
Connection cross-section of auxiliary circuits							
solid		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with ultrasonic welded busbar end		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible without ferrule		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with uninsulated ferrule		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)				
flexible with ferrule to DIN 46228		mm²	1 x (0.5 - 1.5), 2 x (0.5 - 1.5)*				
solid, stranded or flexible		AWG	20 - 14				
Stripping length		mm	10				
Tool for opening the terminal		mm	3.0 x 0.5 slotted screwdriver				
Circuits							
Interlocked opposing contacts to EN 60947-5-1 (Appendix L) inside the auxiliary contact module			Yes				
An NC contact (not a late-breaking contact) is suitable for use as a mirror contact according to IEC/EN 60947-4-1 (Appendix F)			Yes				
Rated impulse withstand voltage	U_{imp}	V AC	6000	6000	6000	6000	6000
Rated operational voltage	U_e	V AC	500	500	500	500	500
Rated operational current							
AC-15							
220/230/240 V	$I_{th} = I_e$	A	4	4	4	4	4
380/400/415 V	$I_{th} = I_e$	A	4	4	4	4	4
500 V	$I_{th} = I_e$	A	1.5	1.5	1.5	1.5	1.5
Contact reliability at U_e = 24 V DC, U_{imp} = 5.4 mA	Failure rate	λ	< 10^{-8}, < 1 failure per 100 million operations				
Power drives							
Voltage tolerance							
AC-operated	Pick-up	x U_c	-	0.8 - 1.1	-	-	-
AC-operated	Drop-out	x U_c	-	0.3 - 0.6	-	-	-
DC-operated	Pick-up	x U_c	-	0.8 - 1.1	-	-	-
DC-operated	Drop-out	x U_c	-	0.15 - 0.6	-	-	-

Technical data - auxiliary contacts for PKZM0 motor-protective circuit breakers

			NHI-E2-...-PI	NHI11...-PI	AGM2...-PI
General information					
Standards			IEC/EN 60947, EN 60947-5-1, VDE 0660, UL, CSA		
Connection cross-section of auxiliary circuits					
solid		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible with ultrasonic welded busbar end		mm²	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible without ferrule		mm²	1 x (0.5 - 1.5), 2 x (0.5 - 1.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible with uninsulated ferrule		mm²	1 x (0.5 - 1.5), 2 x (0.5 - 1.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)	1 x (0.5 - 2.5), 2 x (0.5 - 2.5)
flexible with ferrule to DIN 46228		mm²	1 x (0.5 - 1.5), 2 x (0.5 - 1.5)	1 x (0.5 - 1.5), 2 x (0.5 - 1.5)	1 x (0.5 - 1.5), 2 x (0.5 - 1.5)
solid, stranded or flexible		AWG	20 - 14	20 - 14	20 - 14
Stripping length		mm	8	10	10
Tool for opening the terminal		mm	3.0 x 0.5 slotted screw driver		
Circuits					
Rated impulse withstand voltage	U_{imp}	V AC	4000	6000	6000
Rated operational voltage	U_e	V AC	440	500	500
Rated operational current					
AC-15					
220/230/240 V	$I_{th} = I_e$	A	1	3.5	3.5
380/400/415 V	$I_{th} = I_e$	A		2	2
DC-13 L/R ≦ 100 ms					
24 V	$I_{th} = I_e$	A	2	2	2
Contact reliability at U_e = 24 V DC, U_{imp} = 5.4 mA	Failure rate	λ	< 10^{-8}, < 1 failure per 100 million operations		

*) 1 x (0,5 – 2,5), 2 x (0,5 – 1,5) für DILA-...-PI, DILM7(9)(12)(15)...-PI

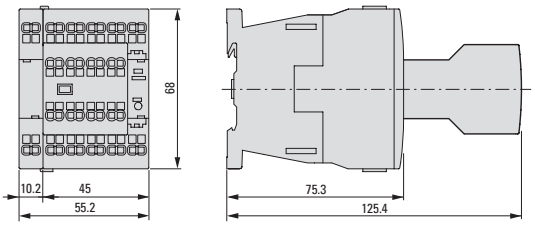
Dimensions

Contactors with auxiliary contact module

DILA...-PI contactor relays with XHI..-(S)-PI auxiliary contacts

DILM7... (-PI) - DILM15...(-PI) contactors

with ...-XHI..-(S)-PI auxiliary contacts

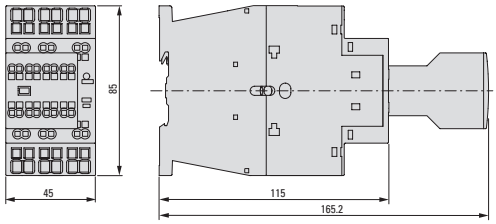


Contactors with auxiliary contact module

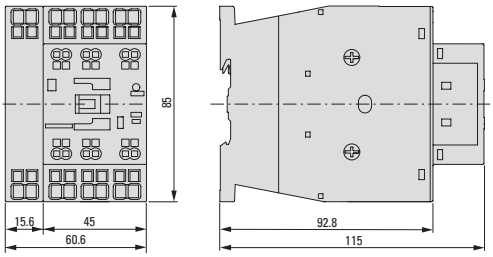
DILM8-...-PI DILM11-...-PI DILM14-...-PI

DILM17-...-PI DILM25-...-PI DILM32-...-PI

DILM38-...-PI

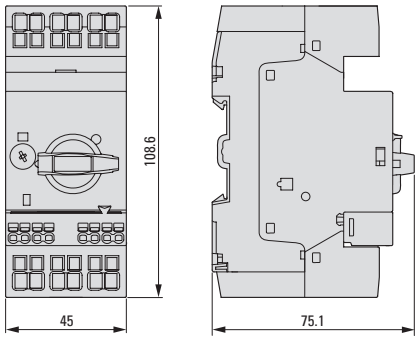


DILMP32(45)-...-PI

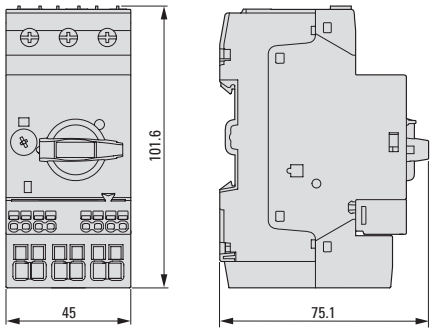


PKZM0... motor-protective circuit breakers with NHI-E2... auxiliary contacts

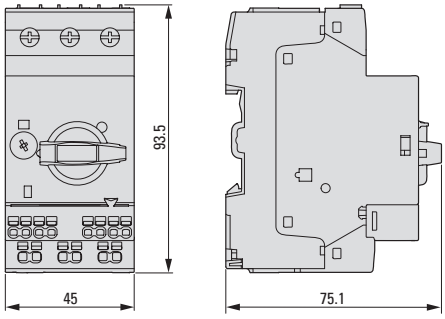
PKZM0-...-PI
PKZM0-...-T-PI



PKZM0-...-SPI32

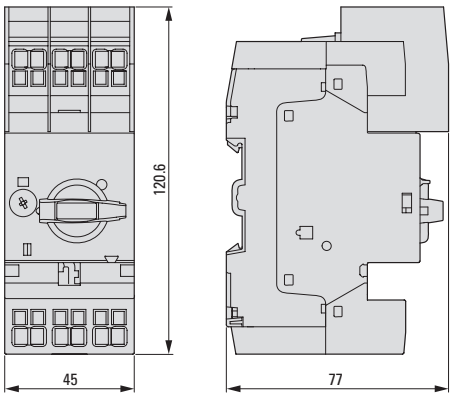


PKZM0-...-SPI16



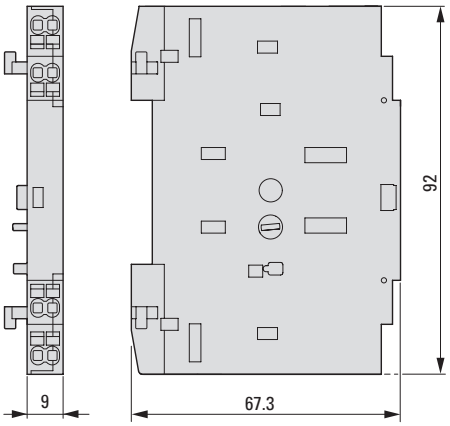
PKZM0 motor-protective circuit breakers

PKZM0-...-PI+LSA-PKZ0-E-PI



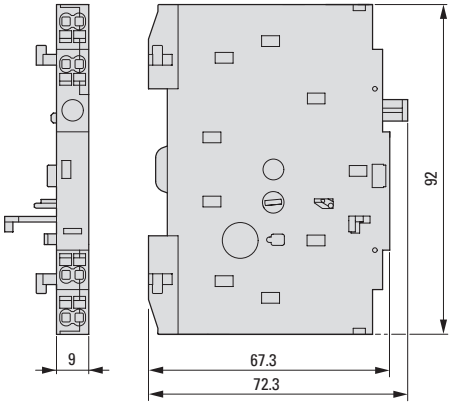
Standard auxiliary contacts

NHI...-PI



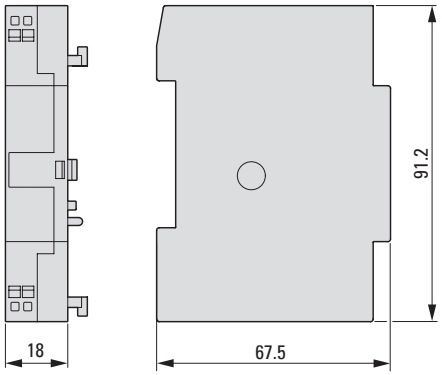
Trip indicators

AGM2...-PI



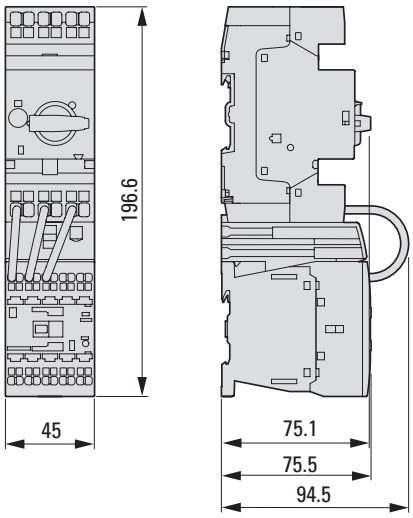
Shunt releases / undervoltage releases

A-PKZ0...-PI/ U-PKZ0...-PI

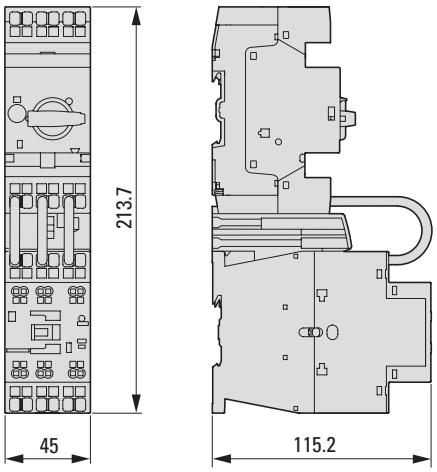


Motor-starter combinations

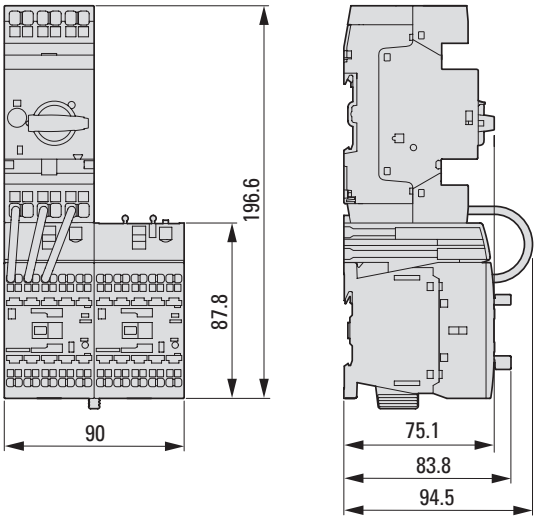
MSC-D-...-DILM7 to -DILM15-PI



MSC-D-...-DILM8, 11, 14, 17, 25, 32-PI



MSC-R-...-DILM7 bis -DILM15-PI



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