



**Contactor,5,5kW/400V,AC-operated**



Powering Business Worldwide™

**Part no. DILM12-10(24V50/60HZ)**

**Article no. 276834**

**Delivery programme**

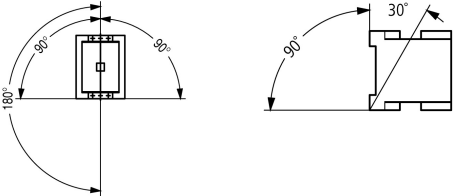
Product range			Contactors
Application			Contactors for Motors
Subrange			Contactors up to 170 A, 3 pole
Utilization category			AC-1: Non-inductive or slightly inductive loads, resistance furnaces AC-3: Squirrel-cage motors: starting, switching off during running AC-4: Squirrel-cage motors: starting, plugging, reversing, inching
Connection technique			Screw terminals
Pole			3 pole
Rated operational current			
AC-3			
380 V 400 V	$I_e$	A	12
AC-1			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	22
enclosed	$I_{th}$	A	18
Conventional free air thermal current, 1 pole			
open	$I_{th}$	A	50
enclosed	$I_{th}$	A	45
Max. rating for three-phase motors, 50 - 60 Hz			
AC-3			
220 V 230 V	P	kW	3.5
380 V 400 V	P	kW	5.5
660 V 690 V	P	kW	6.5
AC-4			
220 V 230 V	P	kW	2
380 V 400 V	P	kW	3
660 V 690 V	P	kW	4.4
Contacts			
N/O = Normally open			1 N/O
Contact sequence			
<b>Instructions</b>			Contacts to EN 50012.
Can be combined with auxiliary contact			DILM32-XHI.. DILA-XHI(V)..
Voltage AC/DC			AC operation

**Approvals**

Product Standards	IEC/EN 60947-4-1; UL 508; CSA-C22.2 No. 14-05; CE marking
UL File No.	E29096
UL CCN	NLDX
CSA File No.	012528
CSA Class No.	2411-03, 3211-04
NA Certification	UL listed, CSA certified
Specially designed for NA	No

**General**

Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			

AC operated	Operations	x 10 <sup>6</sup>	10
DC operated	Operations	x 10 <sup>6</sup>	10
Operating frequency, mechanical			
AC operated	Operations/h		5000
DC operated	Operations/h		5000
Climatic proofing			
			Damp heat, constant to IEC 60068-2-78 Damp heat, cyclic to IEC 60068-2-30
Ambient temperature			
Open		°C	- 25 - 60
Enclosed		°C	- 25 - 40
Storage		°C	- 40 - 80
Mounting position, AC- and DC operated			
			
Mechanical shock resistance (IEC/EN 60068-2-27)			
Half-sinusoidal shock, 10 ms			
Main contacts			
N/O contact		g	10
Auxiliary contacts			
N/O contact		g	7
N/C contact		g	5
Mechanical shock resistance (IEC/EN 60068-2-27) when tabletop-mounted			
Half-sinusoidal shock, 10 ms			
Main contacts			
N/O contact		g	5.7
Auxiliary contacts			
N/O contact		g	3.4
N/C contact		g	3.4
Protection type			
Protection against direct contact when actuated from front (EN 50274)			Finger- and back-of-hand proof
Weight			
AC operated		kg	0.23
DC operated		kg	0.28
Terminal capacity main cable			
Solid		mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Also without ferrule.			
Solid or stranded		AWG	18 - 10
Main cable connection screw/bolt			
			M3.5
Tightening torque			
			1.2
Terminal capacity control circuit cables			
Solid		mm <sup>2</sup>	1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG	18 - 14
Control circuit cable connection screw/bolt			
			M3.5
Tightening torque			
			1.2
Tool			

<b>Main cable</b>			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 6
<b>Control circuit cables</b>			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 x 5.5 1 x 6
<b>Terminal capacity main cable</b>			
Solid		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
flexible		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
flexible with ferrules		mm <sup>2</sup>	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG	18 - 14
<b>Terminal capacity control circuit cables</b>			
Solid		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 x (0.75 - 1.5) 2 x (0.75 - 1.5)
Solid or stranded		AWG	18 - 14
<b>Tool</b>			
Stripping length		mm	10
Screwdriver blade width		mm	3.5

### Main conducting paths

Rated impulse withstand voltage	$U_{imp}$	V AC	8000
Overvoltage category/pollution degree			III/3
Rated insulation voltage	$U_i$	V AC	690
Rated operational voltage	$U_e$	V AC	690
Safe isolation to VDE 0106 Part 101 and Part 101/A1			
between coil and contacts		V AC	400
between the contacts		V AC	400
Making capacity (p.f. to IEC/EN 60947)			
	Up to 690 V	A	144
Breaking capacity			
220 V 230 V		A	120
380 V 400 V AC		A	120
500 V		A	100
660 690 V AC		A	70
Short-circuit rating			
Short-circuit protection maximum fuse			
Type "2" coordination			
400 V	gG/gL 500 V	A	20
690 V	gG/gL 690 V	A	20
Type "1" coordination			
400 V	gG/gL 500 V	A	35
690 V	gG/gL 690 V	A	25

### AC

<b>AC-1</b>			
Rated operational current			

Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	22
at 50 °C	$I_{th} = I_e$	A	21
at 55 °C	$I_{th} = I_e$	A	21
at 60 °C	$I_{th} = I_e$	A	20
enclosed	$I_{th}$	A	18
Conventional free air thermal current, 1 pole			
open	$I_{th}$	A	50
enclosed	$I_{th}$	A	45
<b>AC-3</b>			
Rated operational current			
Open, 3-pole: 50 – 60 Hz			
220 V 230 V	$I_e$	A	12
240 V	$I_e$	A	12
380 V 400 V	$I_e$	A	12
415 V	$I_e$	A	12
440V	$I_e$	A	12
500 V	$I_e$	A	10
660 V 690 V	$I_e$	A	7
Motor rating	P	kWh	
220 V 230 V	P	kW	3.5
240V	P	kW	4
380 V 400 V	P	kW	5.5
415 V	P	kW	7
440 V	P	kW	7.5
500 V	P	kW	7
660 V 690 V	P	kW	6.5
<b>AC-4</b>			
Open, 3-pole: 50 – 60 Hz			
230 V	$I_e$	A	7
240 V	$I_e$	A	7
400 V	$I_e$	A	7
415 V	$I_e$	A	7
440 V	$I_e$	A	7
500 V	$I_e$	A	6
690 V	$I_e$	A	5
Motor rating	P	kWh	
230 V	P	kW	2
240 V	P	kW	2.2
400 V	P	kW	3
415 V	P	kW	3.4
440 V	P	kW	3.6
500 V	P	kW	3.5
690 V	P	kW	4.4

## DC

Rated operational current, open			
<b>DC-1</b>			
60 V	$I_e$	A	20
110 V	$I_e$	A	20
220 V	$I_e$	A	15
440 V	$I_e$	A	1.3
<b>DC-3</b>			

60 V	I <sub>e</sub>	A	20
110 V	I <sub>e</sub>	A	20
220 V	I <sub>e</sub>	A	1.5
440 V	I <sub>e</sub>	A	0.2
DC-5			
60 V	I <sub>e</sub>	A	20
110 V	I <sub>e</sub>	A	20
220 V	I <sub>e</sub>	A	1.5
440 V	I <sub>e</sub>	A	0.2

### Current heat loss

3-pole at I <sub>th</sub>		W	3
Current heat loss at I <sub>e</sub> to AC-3/400 V		W	1.1
Impedance per pole		mΩ	2.5

### Magnet systems

Voltage tolerance		x U <sub>c</sub>	
AC operated	Pick-up	x U <sub>c</sub>	0.8 - 1.1
Drop-out voltage AC operated	Drop-out	x U <sub>c</sub>	0.3 - 0.6
DC operated	Pick-up	x U <sub>c</sub>	0.7 - 1.2
Notes			at least smoothed two-phase bridge rectifier or three-phase rectifier
DC operated	Drop-out	x U <sub>c</sub>	0.15 - 0.6
Power consumption of the coil in a cold state and 1.0 x U <sub>c</sub>			
50 Hz	Pick-up	VA	24
50 Hz	Sealing	VA	3.4
50 Hz	Sealing	W	1.2
60 Hz	Pick-up	VA	30
60 Hz	Sealing	VA	4.4
60 Hz	Sealing	W	1.4
50/60 Hz	Pick-up	VA	27 25
50/60 Hz	Sealing	VA	4.2 3.3
50/60 Hz	Sealing	W	1.4 1.2
DC operated	Pick-up	W	4.5
DC operated	Sealing	W	4.5
Duty factor		% DF	100
Switching times at 100 % U <sub>c</sub> (approximate values)			
Main contacts			
AC operated			
Closing delay		ms	15 - 21
Opening delay		ms	9 - 18
DC operated		ms	
Closing delay		ms	31
Opening delay		ms	12
Arcing time		ms	10
Lifespan, mechanical; Coil 50/60 Hz	at 50 Hz		Mechanical lifespan at 50 Hz approx. 30% lower than under "Technical data, general"

### Electromagnetic compatibility (EMC)

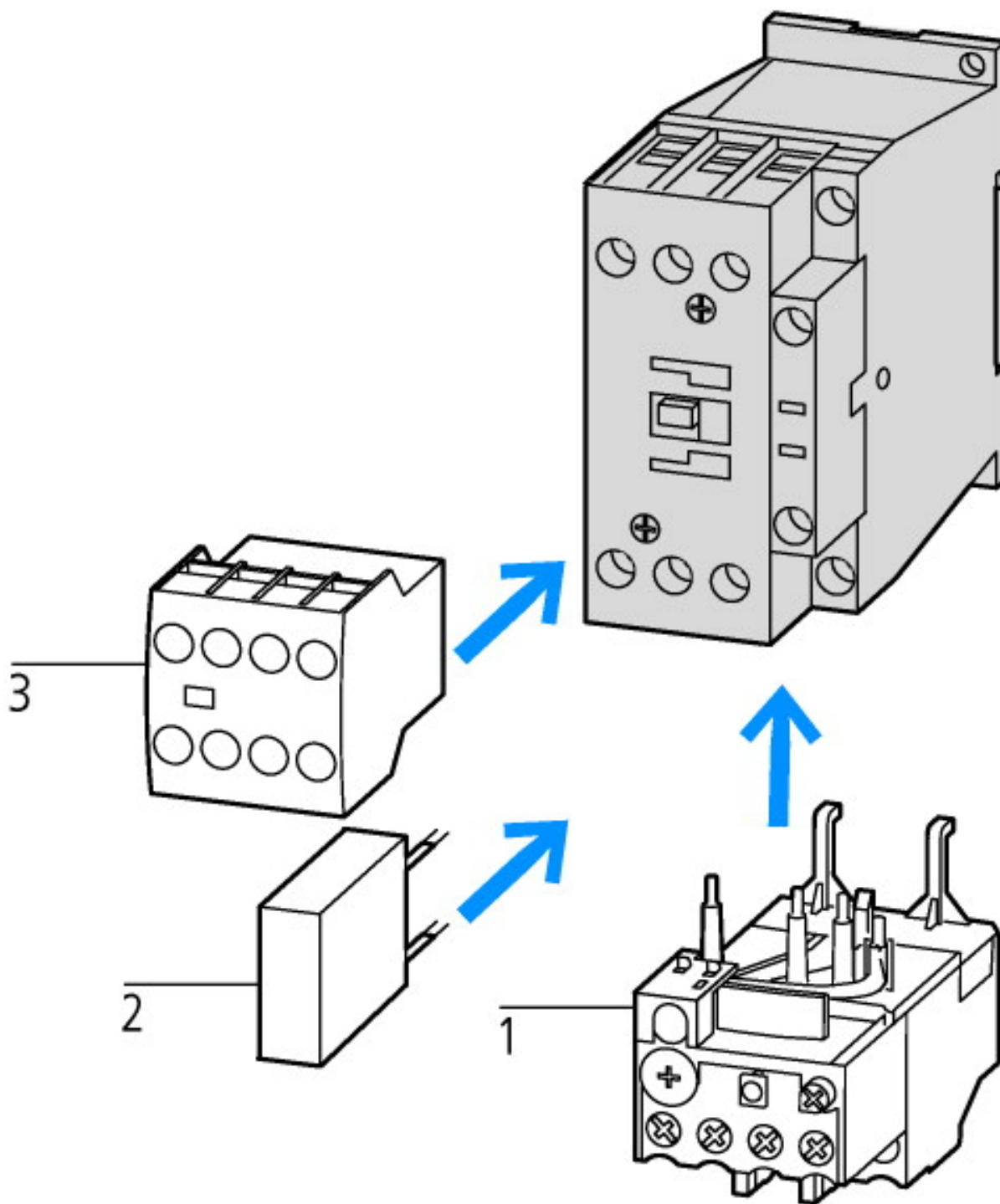
Emitted interference			to EN 60947-1
Interference immunity			to EN 60947-1

### Technical data ETIM 4.0

Number of main contacts as N/Os			3
Rated operation current I <sub>e</sub> at AC-1, 400 V			14
Connection type main circuit			Screw connection
Rated control voltage U <sub>s</sub> at AC 60HZ		V	24

Number of auxiliary contacts as N/Os		1
Rated control voltage $U_s$ at AC 50HZ	V	24
Number of auxiliary contacts as N/Cs		0
Suitable for rail-mounting		No
Rated control voltage $U_s$ at DC	V	0
Voltage type for actuation		AC
Rated operation current $I_e$ at AC-3, 400 V	A	12
Number of N/Cs as main contact		0
Motor rating at AC-3, 400 V	kWh	5.5

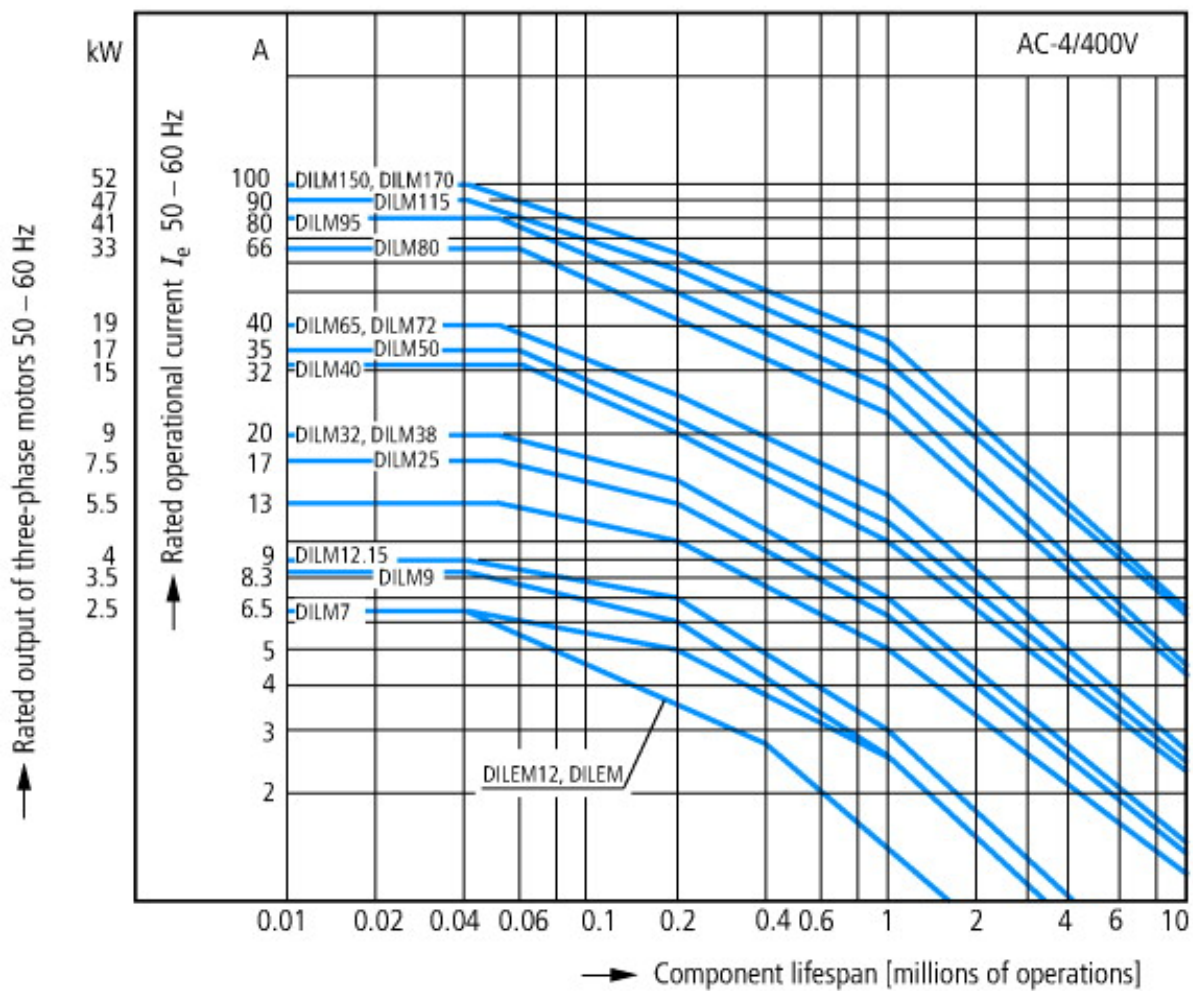
## Characteristics



- 1: Overload relay
- 2: Suppressor
- 3: Auxiliary contact modules



- Squirrel-cage motor
- 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
- Lifts
- Mixers
- Pumps
- Escalators
- Agitators
- Fans
- Conveyor belts
- Centrifuges
- Hinged flaps
- Bucket-elevators
- Air conditioning system
- General drives in manufacturing and processing machines



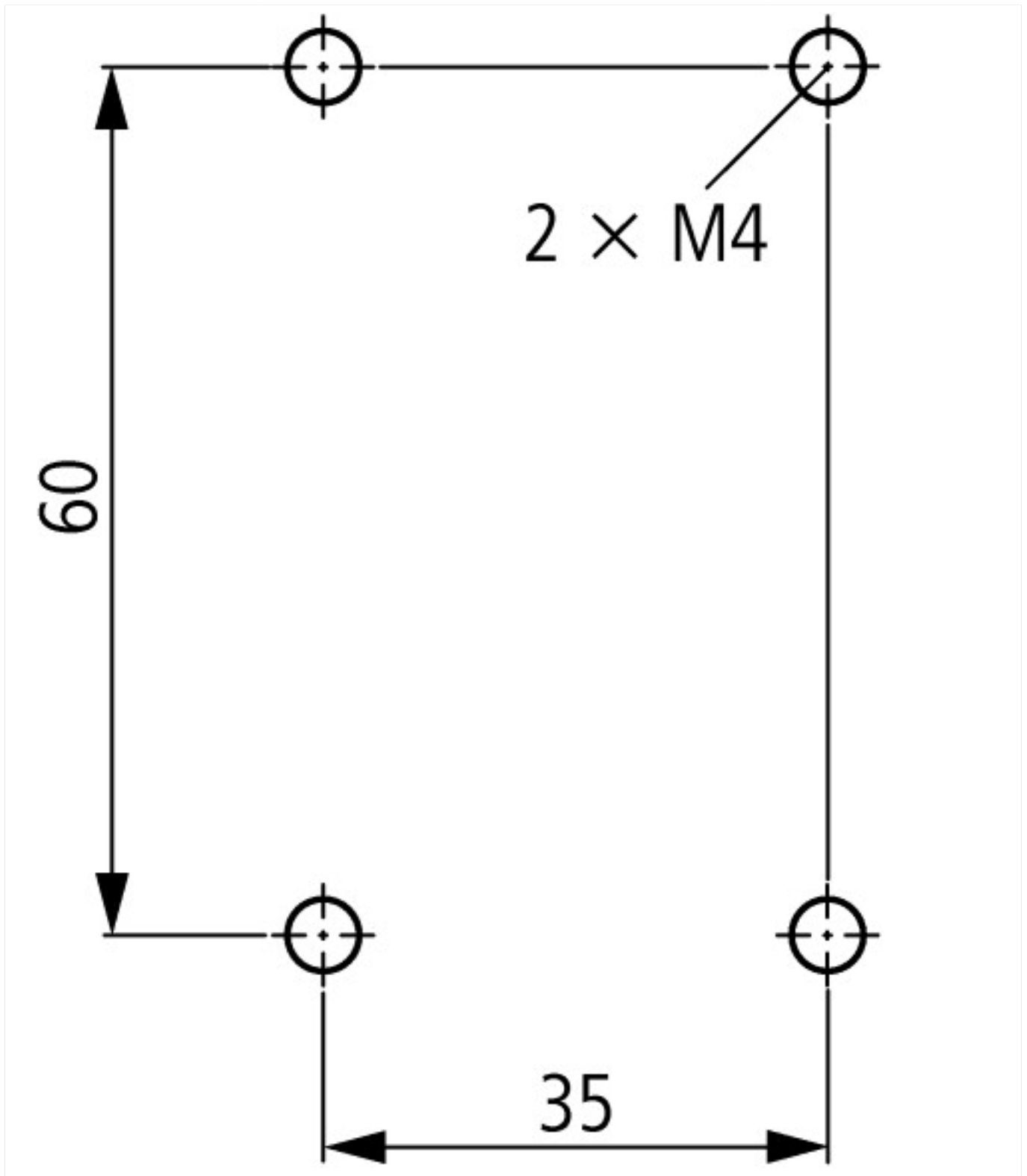
- Extreme switching duty
- Squirrel-cage motor
- Operating characteristics
- Inching, plugging, reversing
- Electrical characteristics
- Make: up to 6 x rated motor current
- Break: up to 6 x rated motor current
- Utilization category
- 100 % AC-4
- Typical applications
- Printing presses
- Wire-drawing machines
- Centrifuges
- Special drives for manufacturing and processing machines

## Dimensions





Contacteur avec module de contact auxiliaire



#### Additional product information (links)

<b>IL03407013Z (AWA2100-2126) Contactors</b>	
IL03407013Z (AWA2100-2126) Contactors	<a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407013Z2012_03.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407013Z2012_03.pdf</a>
	<a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.84">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.84</a>
	<a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.85">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.85</a>
	<a href="http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.86">http://de.ecat.moeller.net/flip-cat/?edition=HPLTE&amp;startpage=5.86</a>
Switchgear of Power Factor Correction Systems	<a href="http://www.moeller.net/binary/ver_techpapers/ver934en.pdf">http://www.moeller.net/binary/ver_techpapers/ver934en.pdf</a>
X-Start - New Generation:100 years of Moeler contactors - Continuous Progress-	<a href="http://www.moeller.net/binary/ver_techpapers/ver937en.pdf">http://www.moeller.net/binary/ver_techpapers/ver937en.pdf</a>
X-Start - Modern Switching Installations Efficiently Fitted and Wired Securely	<a href="http://www.moeller.net/binary/ver_techpapers/ver938en.pdf">http://www.moeller.net/binary/ver_techpapers/ver938en.pdf</a>

Mirror Contacts for Highly-Reliable Information Relating to Safety-Related Control Functions	<a href="http://www.moeller.net/binary/ver_techpapers/ver944en.pdf">http://www.moeller.net/binary/ver_techpapers/ver944en.pdf</a>
Effect of the Cable Capacitance of Long Control Cables on the Actuation of Contactors	<a href="http://www.moeller.net/binary/ver_techpapers/ver949en.pdf">http://www.moeller.net/binary/ver_techpapers/ver949en.pdf</a>
Motor starters and "Special Purpose Ratings" for the North American market	<a href="http://www.moeller.net/binary/ver_techpapers/ver953en.pdf">http://www.moeller.net/binary/ver_techpapers/ver953en.pdf</a>
Switchgear for Luminaires	<a href="http://www.moeller.net/binary/ver_techpapers/ver955en.pdf">http://www.moeller.net/binary/ver_techpapers/ver955en.pdf</a>
Standard Compliant and Functionally Safe Engineering Design with Mechanical Auxiliary Contacts	<a href="http://www.moeller.net/binary/ver_techpapers/ver956en.pdf">http://www.moeller.net/binary/ver_techpapers/ver956en.pdf</a>
The Interaction of Contactors with PLCs	<a href="http://www.moeller.net/binary/ver_techpapers/ver957en.pdf">http://www.moeller.net/binary/ver_techpapers/ver957en.pdf</a>
Busbar Component Adapters for modern Industrial control panels	<a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a>