

Type: **DILM9-10(24V50HZ)**  
 Article No.: **276677**



**Ordering information**

Rated operational current AC-3 400 V	$I_e$	A	9
Max. rating for three-phase motors, 50 – 60 Hz AC-3 230 V	$P$	kW	2.5
Max. rating for three-phase motors, 50 – 60 Hz AC-3 400 V	$P$	kW	4
Max. rating for three-phase motors, 50 – 60 Hz AC-3 690 V	$P$	kW	4.5
Max. rating for three-phase motors, 50 – 60 Hz AC-4 230 V	$P$	kW	1.5
Max. rating for three-phase motors, 50 – 60 Hz AC-4 400 V	$P$	kW	2.5
Max. rating for three-phase motors, 50 – 60 Hz AC-4 690 V	$P$	kW	3.6

**General**

Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	$\times 10^6$	10
DC operated	Operations	$\times 10^6$	10
Operating frequency, mechanical			
AC operated	Operations/h		9000
DC operated	Operations/h		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
Enclosed		°C	-25/40
Storage		°C	-40/80

Mechanical shock resistance (IEC/EN 60068–2–27)			
Half-sinusoidal shock, 20 ms			
Main contacts			
Make contact		g	10
Auxiliary contacts			
Make contact		g	7
Break contact		g	5
Protection type			IP20
Protection against direct contact when actuated from front (IEC 536)			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 × (0.75 – 4) 2 × (0.75 – 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 × (0.75 – 2.5) 2 × (0.75 – 2,5)
Solid or stranded		AWG	18 – 14
Anschlusschraube Hauptleiter			M3.5
Tightening torque		Nm	1.2
Terminal capacity Control circuit cables			
Solid		mm <sup>2</sup>	1 × (0.75 – 4) 2 × (0.75 – 2.5)
Flexible with ferrule		mm <sup>2</sup>	1 × (0.75 – 2.5) 2 × (0.75 – 2.5)
Solid or stranded		AWG	18 – 14
Anschlusschraube Hilfsleiter			M3.5
Tightening torque		Nm	1.2
Tool			
Main cable			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 × 5.5 1 × 6
Control circuit cables			
Pozidriv screwdriver		Size	2
Standard screwdriver		mm	0.8 × 5.5 1 × 6
Terminal capacity Main cable			
Solid		mm <sup>2</sup>	0.75 – 2.5
flexible		mm <sup>2</sup>	0.75 – 2.5
flexible with ferrules		mm <sup>2</sup>	0.75 – 2.5
Solid or stranded		AWG	18 – 14
Terminal capacity Control circuit cables			
Solid		mm <sup>2</sup>	0.75 – 2.5
Flexible		mm <sup>2</sup>	0.75 – 2.5
Flexible with ferrule		mm <sup>2</sup>	0.75 – 2.5

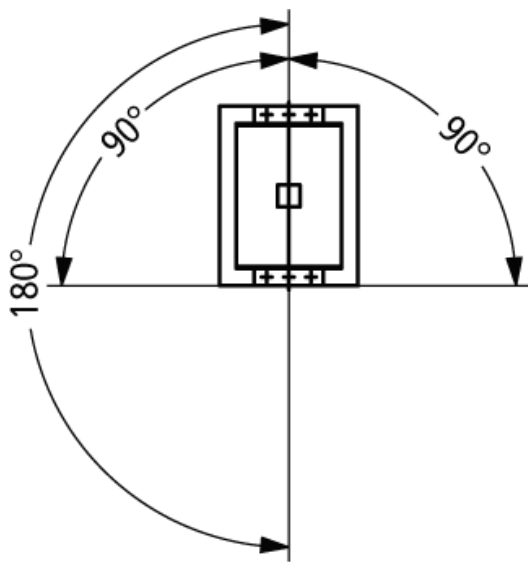
Solid or stranded		AWG	18 – 14
Tool			
Stripping length		mm	10
Screwdriver blade width		mm	3,5
<b>Main conducting paths</b>			
Rated impulse withstand voltage	$U_{imp}$	V AC	8000
Overvoltage category/pollution degree			III/3
Rated insulation voltage			
AC	$U_i$	V AC	690
Rated operational voltage	$U_e$	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 (cos $\bar{O}$ to IEC/EN 60947) up to 690 V		A	112
Breaking capacity			
220/230 V		A	90
380/400 V		A	90
500 V		A	70
660/690 V		A	50
Component lifespan			
AC-3/AC-4			Tripping characteristics
Maximum operating frequency			
AC-1; 400 V	$I_e$	Ops/h	800
AC-3; 400 V	$I_e$	Ops/h	1000
AC-4; 400 V	$I_e$	Ops/h	300
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	16
Type "1" coordination			
400 V	gG/gL 500 V	A	35
690 V	gG/gL 690 V	A	20
<b>AC</b>			
AC-1 duty			
conv. therm. current 3-pole 50 – 60 Hz			
open			
at 40 °C	$I_{th}$	A	22
at 50 °C	$I_{th}$	A	21
at 55 °C	$I_{th}$	A	21
at 60 °C	$I_{th}$	A	20
Enclosed	$I_{th}$	A	18
Conventional free air thermal current, 1-pole			

open	$I_{th}$	A	50
Enclosed	$I_{th}$	A	45
AC-3 duty			
Rated operational current AC-3 open, 50 – 60 Hz, 3-pole			
220/230 V	$I_e$	A	9
240 V	$I_e$	A	9
380/400 V	$I_e$	A	9
415 V	$I_e$	A	9
440V	$I_e$	A	9
500 V	$I_e$	A	7
660/690 V	$I_e$	A	5
Motor rating			
220/230 V	$P$	kW	2,5
240V	$P$	kW	3
380/400 V	$P$	kW	4
415 V	$P$	kW	5,5
440 V	$P$	kW	5,5
500 V	$P$	kW	4,5
660/690 V	$P$	kW	4,5
AC-4 duty			
Rated operational current AC-4 open, 50 – 60 Hz, 3-pole			
220/230 V	$I_e$	A	6
240 V	$I_e$	A	6
380/400 V	$I_e$	A	6
415 V	$I_e$	A	6
440 V	$I_e$	A	6
500 V	$I_e$	A	5
660/690 V	$I_e$	A	4,5
Motor rating			
220/230 V	$P$	kW	1,5
240 V	$P$	kW	1,6
380/400 V	$P$	kW	2,5
415 V	$P$	kW	2,8
440 V	$P$	kW	3
500 V	$P$	kW	2,8
660/690 V	$P$	kW	3,6
<b>DC</b>			
of three-phase capacitors open			
DC-1 operation			
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
DC-3 operation			
60 V	$I_e$	A	20

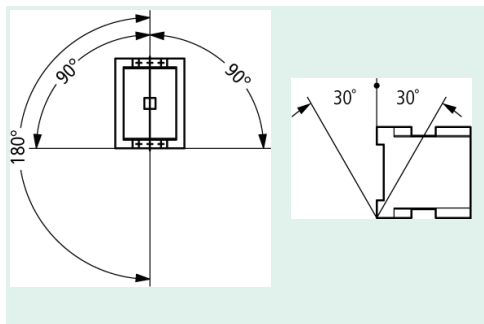
110 V	$I_e$	A	20
220 V	$I_e$	A	1,5
440 V	$I_e$	A	0,2
DC-5 operation			
60 V	$I_e$	A	20
110 V	$I_e$	A	20
220 V	$I_e$	A	1,5
440 V	$I_e$	A	0,2
<b>Current heat loss (3-pole)</b>			
Current heat loss at $I_{th}$		W	4,7
Current heat loss at $I_e$ to AC-3/400 V		W	0,6
Impedance per pole		mΩ	2,5
<b>Magnet systems</b>			
Voltage tolerance			
AC operated			
AC operated	Pick-up	$\times U_c$	0,8 – 1,1
Drop-out voltage AC operated			
Drop-out voltage AC operated	Abfall	$\times U_c$	0,3 – 0,6
DC operated			
DC operated	Pick-up	$\times U_c$	0,8 – 1,1
DC operated			
DC operated	Abfall	$\times U_c$	0,15–0,6
Power consumption of the coil in a cold state and $1.0 \times U_c$			
50 Hz	Pick-up	VA	24
50 Hz	Pick-up	W	19
50 Hz	Sealing	VA	4
50 Hz	Sealing	W	1,2
60 Hz	Pick-up	VA	29
60 Hz	Pick-up	W	23
60 Hz	Sealing		4,4
60 Hz	Sealing	VA	1,3
50/60 Hz	Pick-up	VA	28 26
50/60 Hz	Pick-up	W	22 21
50/60 Hz	Sealing	VA	4,6 3,9
50/60 Hz	Sealing	W	1,4 1,2
DC operated	Pick-up	W	3
DC operated	Sealing	W	3
Duty factor		% DF	100
Switching times at 100 % $U_c$ (approximate values)			
Main contacts			
AC operated			
Closing delay		ms	20

Opening delay		ms	15
DC operated			
Closing delay		ms	35
Opening delay		ms	15
Arcing time		ms	10
<b>Electromagnetic compatibility (EMC)</b>			
Emitted interference			to EN 60947-1
Interference immunity			to EN 60947-1

## Mounting position



## Mounting position, AC- and DC operated



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