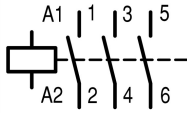




Lamp load contactor, 400 V 50 Hz, 440 V 60 Hz, 220 V 230 V: 20 A,  
Contactors for lighting systems

Part no. **DILL20(400V50HZ,440V60HZ)**  
 Catalog No. **104409**  
 Alternate Catalog No. **XTCT020C00N**

**Delivery program**

Product range				DILL Lighting contactors																																																																																																
Application				Contactors for lighting systems																																																																																																
Utilization category				AC-1: Non-inductive or slightly inductive loads, resistance furnaces																																																																																																
<b>Rated operational current</b>																																																																																																				
AC-5a																																																																																																				
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Contact sequence																																																																																																				
Actuating voltage				400 V 50 Hz, 440 V 60 Hz																																																																																																
Note				<p>Switchgear for lighting systems</p> <table border="1"> <thead> <tr> <th>DIL</th> <th>L12</th> <th>L18</th> <th>L20</th> <th>M7</th> <th>M9</th> <th>M12</th> <th>M17</th> <th>M25</th> <th>M32</th> <th>M40</th> <th>M50</th> </tr> </thead> <tbody> <tr> <td>70</td> <td>470</td> <td>470</td> <td>470</td> <td>47</td> <td>80</td> <td>100</td> <td>220</td> <td>330</td> <td>470</td> <td>470</td> <td>500</td> </tr> </tbody> </table> <p>Permissible completion capacitance</p> <table border="1"> <thead> <tr> <th>Filament lamp</th> <th>Mercury blended lamps</th> <th>Fluorescent lamps, conventional</th> <th>Fluorescent lamps, conventional - reactor - starter - connection</th> <th>Fluorescent lamps, conventional - reactor - starter - connection</th> <th>Fluorescent lamps, duo circuit (series compensated) electric upstream devices and</th> </tr> </thead> <tbody> <tr> <td>14</td> <td>12</td> <td>20</td> <td>20</td> <td>12</td> <td>12</td> </tr> <tr> <td>21</td> <td>16</td> <td>26</td> <td>26</td> <td>18</td> <td>18</td> </tr> <tr> <td>27</td> <td>23</td> <td>35</td> <td>35</td> <td>20</td> <td>20</td> </tr> <tr> <td>6</td> <td>5</td> <td>9</td> <td>5.5</td> <td>5</td> <td>3.5</td> </tr> <tr> <td>7.5</td> <td>6.5</td> <td>10</td> <td>8</td> <td>6.5</td> <td>6</td> </tr> <tr> <td>10</td> <td>8.5</td> <td>15</td> <td>13</td> <td>8.5</td> <td>10</td> </tr> <tr> <td>14</td> <td>12</td> <td>20</td> <td>15</td> <td>12</td> <td>12</td> </tr> <tr> <td>21</td> <td>16</td> <td>26</td> <td>22.5</td> <td>17.5</td> <td>17.5</td> </tr> <tr> <td>27</td> <td>23</td> <td>35</td> <td>29</td> <td>22.5</td> <td>20</td> </tr> <tr> <td>33</td> <td>30</td> <td>41</td> <td>36</td> <td>28</td> <td>25</td> </tr> <tr> <td>42</td> <td>38</td> <td>45</td> <td>47</td> <td>35</td> <td>30</td> </tr> </tbody> </table>	DIL	L12	L18	L20	M7	M9	M12	M17	M25	M32	M40	M50	70	470	470	470	47	80	100	220	330	470	470	500	Filament lamp	Mercury blended lamps	Fluorescent lamps, conventional	Fluorescent lamps, conventional - reactor - starter - connection	Fluorescent lamps, conventional - reactor - starter - connection	Fluorescent lamps, duo circuit (series compensated) electric upstream devices and	14	12	20	20	12	12	21	16	26	26	18	18	27	23	35	35	20	20	6	5	9	5.5	5	3.5	7.5	6.5	10	8	6.5	6	10	8.5	15	13	8.5	10	14	12	20	15	12	12	21	16	26	22.5	17.5	17.5	27	23	35	29	22.5	20	33	30	41	36	28	25	42	38	45	47	35	30
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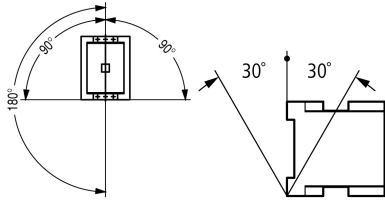
Switchgear for lighting systems	Capacitance												
	DIL M65	M80	M95	M115	M150	M185	M225	M250	M300	M400	M500A	Permissible capacitor load (Cmax)	
LED lamps	18	20	3.5	6	10	12	17.5	20	25	30			
High-le [A]12 pressure mercury-arc lamps	18	20	3.5	6	10	12	17.5	20	25	30			
Meta-le [A]12 halide lamps	18	20	3.5	6	10	12	17.5	20	25	30			
Low-le [A]7.5 pressure sodium lamps	10	12	3	4	6	7.5	10	12	15	22			
Filament lamp	55	67	79	95	125	153	187	208	349	332	415		
Mercury blended lamps	45	65	67	80	110	123	150	167	200	266	332		
Fluorescent lamps, conventional - reactor - starter - connection	55	71	95	100	138	186	213	236	270	338	473		
Fluorescent lamps, duo circuit (series compensated) electrical upstream devices and LED lamps	55.5	56	66.5	80.5	105	130	158	175	210	280	350		
High-le [A]36 pressure mercury-arc lamps	36	55	60	80	95	138	158	175	200	250	350		
Meta-le [A]36 halide lamps	36	55	60	80	95	138	158	175	200	250	350		
Low-le [A]25 pressure sodium lamps	25	35	40	50	70	100	11	123	140	175	245		

In compensated lamps, the sum of the capacitances must not exceed the contactors' max. permissible capacitor load (Cmax)!  
The values in the table are for each contact in the contactors.

## Technical data

### General

Standards			IEC/EN 60947, VDE 0660, UL, CSA
Lifespan, mechanical			
AC operated	Operations	x 10 <sup>6</sup>	1
Operating frequency, mechanical			
AC operated	Operations/h		60
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Open		°C	-25 - +60

Enclosed	°C	- 25 - 40
Storage	°C	- 40 - 80
Mounting position		
Mechanical shock resistance (IEC/EN 60068-2-27)		
Half-sinusoidal shock, 10 ms		
Mechanical shock resistance	g	6.9
Degree of Protection		IP00
Altitude	m	Max. 2000
Weight		
AC operated	kg	0.42

### 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
Making capacity		A	550
Breaking capacity	380 ... 400 V	A	320
Lifespan, electrical	Operations		10000
Short-circuit protection maximum fuse			
400 V	gG/gL 500 V	A	125

### AC

AC-1			
Rated operational current			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	$I_{th} = I_e$	A	45
at 60 °C	$I_{th} = I_e$	A	40
AC-5a operation			
220 V 230 V	$I_e$	A	20
380 V 400 V	$I_e$	A	20
AC-5b operation			
220 V 230 V	$I_e$	A	27
380 V 400 V	$I_e$	A	27
380 V 400 V	$I_e$	A	27
Electric lamps			
Filament bulbs		A	27
Mercury blended lamps		A	23
Fluorescent lamp load			
Conventional reactor starter circuit		A	35
Duo circuit		A	35
Electronic upstream devices		A	20
High-pressure mercury vapour lamps		A	20
Metal-halide lamps		A	20
High-pressure sodium lamps		A	20
Low-pressure sodium lamps		A	12
Maximum permissible compensation capacitance		µF	470

### Additional technical data

like the contactor	DIL		M32
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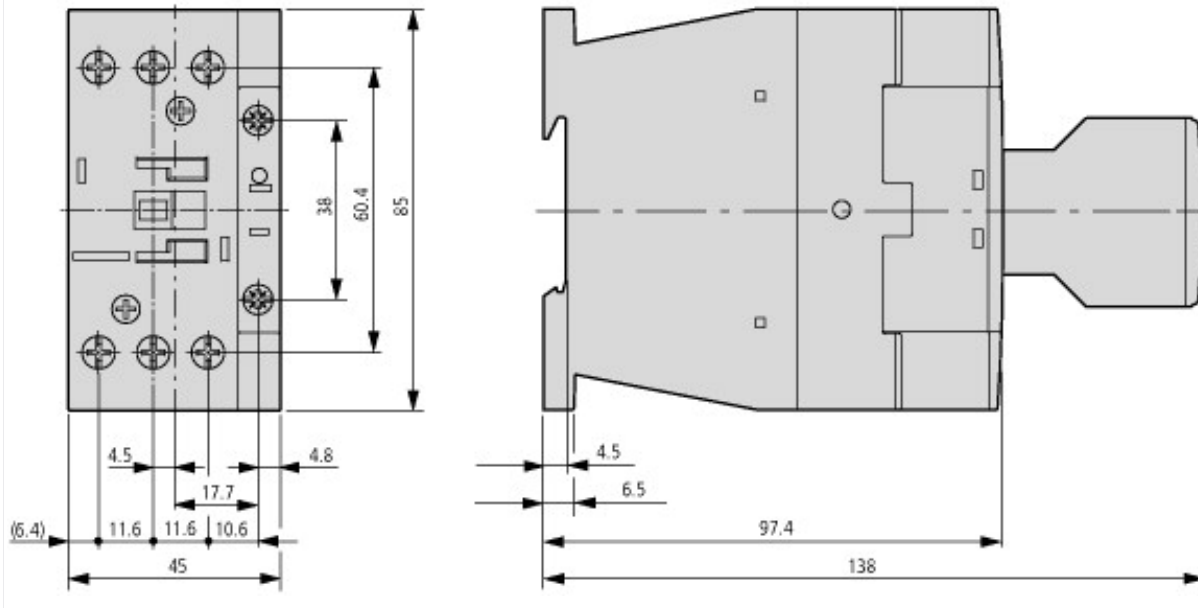
## Design verification as per IEC/EN 61439

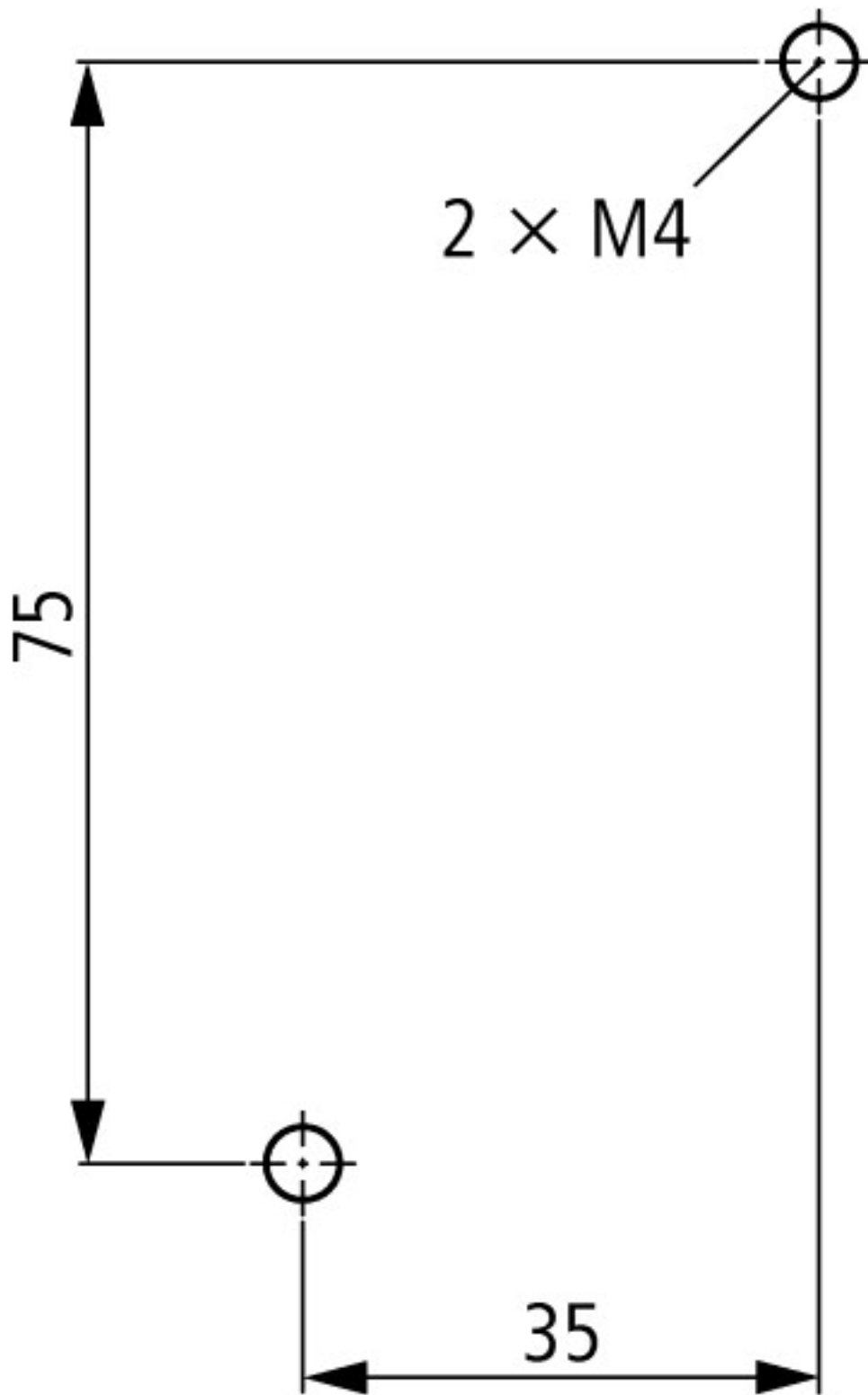
Technical data for design verification			
Rated operational current for specified heat dissipation	$I_n$	A	27
Heat dissipation per pole, current-dependent	$P_{vid}$	W	1.5
Equipment heat dissipation, current-dependent	$P_{vid}$	W	4.5
Static heat dissipation, non-current-dependent	$P_{vs}$	W	2.1
Heat dissipation capacity	$P_{diss}$	W	0
Operating ambient temperature min.		°C	-25
Operating ambient temperature max.		°C	60
IEC/EN 61439 design verification			
10.2 Strength of materials and parts			
10.2.2 Corrosion resistance			
			Meets the product standard's requirements.
10.2.3.1 Verification of thermal stability of enclosures			
			Meets the product standard's requirements.
10.2.3.2 Verification of resistance of insulating materials to normal heat			
			Meets the product standard's requirements.
10.2.3.3 Verification of resistance of insulating materials to abnormal heat and fire due to internal electric effects			
			Meets the product standard's requirements.
10.2.4 Resistance to ultra-violet (UV) radiation			
			Meets the product standard's requirements.
10.2.5 Lifting			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.6 Mechanical impact			
			Does not apply, since the entire switchgear needs to be evaluated.
10.2.7 Inscriptions			
			Meets the product standard's requirements.
10.3 Degree of protection of ASSEMBLIES			
			Does not apply, since the entire switchgear needs to be evaluated.
10.4 Clearances and creepage distances			
			Meets the product standard's requirements.
10.5 Protection against electric shock			
			Does not apply, since the entire switchgear needs to be evaluated.
10.6 Incorporation of switching devices and components			
			Does not apply, since the entire switchgear needs to be evaluated.
10.7 Internal electrical circuits and connections			
			Is the panel builder's responsibility.
10.8 Connections for external conductors			
			Is the panel builder's responsibility.
10.9 Insulation properties			
10.9.2 Power-frequency electric strength			
			Is the panel builder's responsibility.
10.9.3 Impulse withstand voltage			
			Is the panel builder's responsibility.
10.9.4 Testing of enclosures made of insulating material			
			Is the panel builder's responsibility.
10.10 Temperature rise			
			The panel builder is responsible for the temperature rise calculation. Eaton will provide heat dissipation data for the devices.
10.11 Short-circuit rating			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.12 Electromagnetic compatibility			
			Is the panel builder's responsibility. The specifications for the switchgear must be observed.
10.13 Mechanical function			
			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

## Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)			
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])			
Rated control supply voltage $U_s$ at AC 50HZ		V	400 - 400
Rated control supply voltage $U_s$ at AC 60HZ		V	440 - 440
Rated control supply voltage $U_s$ at DC		V	0 - 0
Voltage type for actuating			AC
Rated operation current $I_e$ at AC-1, 400 V		A	20
Rated operation current $I_e$ at AC-3, 400 V		A	0
Rated operation power at AC-3, 400 V		kW	0
Rated operation current $I_e$ at AC-4, 400 V		A	0
Rated operation power at AC-4, 400 V		kW	0
Rated operation power NEMA		kW	0
Modular version			No
Number of auxiliary contacts as normally open contact			0
Number of auxiliary contacts as normally closed contact			0
Type of electrical connection of main circuit			Screw connection
Number of normally closed contacts as main contact			0

## Dimensions





distance at side to earthed parts: 6 mm

## Assets (links)

### Declaration of CE Conformity

00002883

### Instruction Leaflets

IL03407047Z2018\_05

## Additional product information (links)

### IL03407047Z (AWA2100-2322) Lighting contactors

IL03407047Z (AWA2100-2322) Lighting contactors

[ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407047Z2018\\_05.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407047Z2018_05.pdf)