



Lamp load contactor, 230 V 50 Hz, 240 V 60 Hz, 220 V 230 V: 20 A,  
Contactors for lighting systems

Part no. **DILL20(230V50HZ,240V60HZ)**  
 Catalog No. **104408**  
 Alternate Catalog No. **XTCT020C00F**  
 EL-Nummer (Norway) **4134241**

**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																																																																																																											
220 V 230 V	$I_e$	A	20																																																																																																								
380 V 400 V	$I_e$	A	20																																																																																																								
AC-5b																																																																																																											
220 V 230 V	$I_e$	A	27																																																																																																								
380 V 400 V	$I_e$	A	27																																																																																																								
AC-1																																																																																																											
Conventional free air thermal current, 3 pole, 50 - 60 Hz																																																																																																											
Open																																																																																																											
at 40 °C	$I_{th} = I_e$	A	45																																																																																																								
Contact sequence																																																																																																											
Actuating voltage			230 V 50 Hz, 240 V 60 Hz																																																																																																								
Note			<p>Switchgear for lighting systems</p> <table border="1"> <thead> <tr> <th></th> <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>Permissible compensation capacitance</td> <td>70</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> <td></td> </tr> <tr> <td>Filament lamp</td> <td>14</td> <td>21</td> <td>27</td> <td>6</td> <td>7.5</td> <td>10</td> <td>14</td> <td>21</td> <td>27</td> <td>33</td> <td>42</td> <td></td> </tr> <tr> <td>Mercury blended lamps</td> <td>12</td> <td>16</td> <td>23</td> <td>5</td> <td>6.5</td> <td>8.5</td> <td>12</td> <td>16</td> <td>23</td> <td>30</td> <td>38</td> <td></td> </tr> <tr> <td>Fluorescent lamps, conventional - reactor - starter - connection</td> <td>20</td> <td>26</td> <td>35</td> <td>9</td> <td>10</td> <td>15</td> <td>20</td> <td>26</td> <td>35</td> <td>41</td> <td>45</td> <td></td> </tr> <tr> <td>Fluorescent lamps, conventional - reactor - starter - connection</td> <td>20</td> <td>26</td> <td>35</td> <td>5.5</td> <td>8</td> <td>13</td> <td>15</td> <td>22.5</td> <td>29</td> <td>36</td> <td>47</td> <td></td> </tr> <tr> <td>Fluorescent lamps, duo circuit (series compensated) electrical upstream devices and</td> <td>12</td> <td>18</td> <td>20</td> <td>5</td> <td>6.5</td> <td>8.5</td> <td>12</td> <td>17.5</td> <td>22.5</td> <td>28</td> <td>35</td> <td></td> </tr> <tr> <td></td> <td>12</td> <td>18</td> <td>20</td> <td>3.5</td> <td>6</td> <td>10</td> <td>12</td> <td>17.5</td> <td>20</td> <td>25</td> <td>30</td> <td></td> </tr> </tbody> </table>		DIL	L12	L18	L20	M7	M9	M12	M17	M25	M32	M40	M50	Permissible compensation capacitance	70	470	470	47	80	100	220	330	470	470	500		Filament lamp	14	21	27	6	7.5	10	14	21	27	33	42		Mercury blended lamps	12	16	23	5	6.5	8.5	12	16	23	30	38		Fluorescent lamps, conventional - reactor - starter - connection	20	26	35	9	10	15	20	26	35	41	45		Fluorescent lamps, conventional - reactor - starter - connection	20	26	35	5.5	8	13	15	22.5	29	36	47		Fluorescent lamps, duo circuit (series compensated) electrical upstream devices and	12	18	20	5	6.5	8.5	12	17.5	22.5	28	35			12	18	20	3.5	6	10	12	17.5	20	25	30	
	DIL	L12	L18	L20	M7	M9	M12	M17	M25	M32	M40	M50																																																																																															
Permissible compensation capacitance	70	470	470	47	80	100	220	330	470	470	500																																																																																																
Filament lamp	14	21	27	6	7.5	10	14	21	27	33	42																																																																																																
Mercury blended lamps	12	16	23	5	6.5	8.5	12	16	23	30	38																																																																																																
Fluorescent lamps, conventional - reactor - starter - connection	20	26	35	9	10	15	20	26	35	41	45																																																																																																
Fluorescent lamps, conventional - reactor - starter - connection	20	26	35	5.5	8	13	15	22.5	29	36	47																																																																																																
Fluorescent lamps, duo circuit (series compensated) electrical upstream devices and	12	18	20	5	6.5	8.5	12	17.5	22.5	28	35																																																																																																
	12	18	20	3.5	6	10	12	17.5	20	25	30																																																																																																

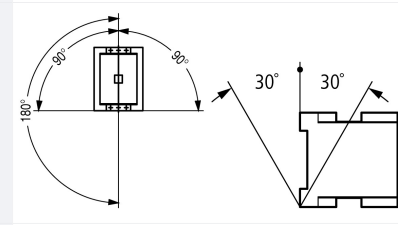
Switchgear for lighting systems LED lamps High-le [A]12 pressure mercury- arc lamps Metal-halide [A]12 halide lamps Low-le [A]7.5 pressure sodium lamps	18	20	3.5	6	10	12	17.5	20	25	30	Capacitance												
											DIL M65	M80	M95	M115	M150	M185	M225	M250	M300	M400	M500A		
Permissible capacitance	500	550	620	830	970	2055	2300	2600	3000	3250	3500												
Filament lamp	55	67	79	95	125	153	187	208	349	332	415												
Mercury-arc blended lamps	45	65	67	80	110	123	150	167	200	266	332												
Fluorescent lamps, conventional	45	95	100	125	145	207	237	263	300	375	525												
- reactor																							
- starter																							
- connection																							
Fluorescent lamps, conventional	59	71	95	100	138	186	213	236	270	338	473												
- reactor																							
- starter																							
- connection																							
Fluorescent lamps, duo circuit (series compensated)	45.5	56	66.5	80.5	105	130	158	175	210	280	350												
electric upstream devices and LED lamps	36	55	60	80	95	138	158	175	200	250	350												
High-le [A]36 pressure mercury- arc lamps	36	55	60	80	95	138	158	175	200	250	350												
Metal-halide [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
--------------------	-----	--	-----

### Rating data for approved types

Switching capacity			
General use		A	40

Short Circuit Current Rating		SCCR	
Basic Rating			
SCCR	kA		5
max. Fuse	A		125
max. CB	A		125
480 V High Fault			
SCCR (fuse)	kA		100
max. Fuse	A		125 Class J
SCCR (CB)	kA		22
max. CB	A		32
600 V High Fault			
SCCR (fuse)	kA		100
max. Fuse	A		125 Class J
SCCR (CB)	kA		22
max. CB	A		32
Special Purpose Ratings			
Incandescent Lamps (Tungsten)			
480V 60Hz 3phase, 277V 60Hz 1phase	A		40
600V 60Hz 3phase, 347V 60Hz 1phase	A		40

## 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.

## Technical data ETIM 7.0

Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)

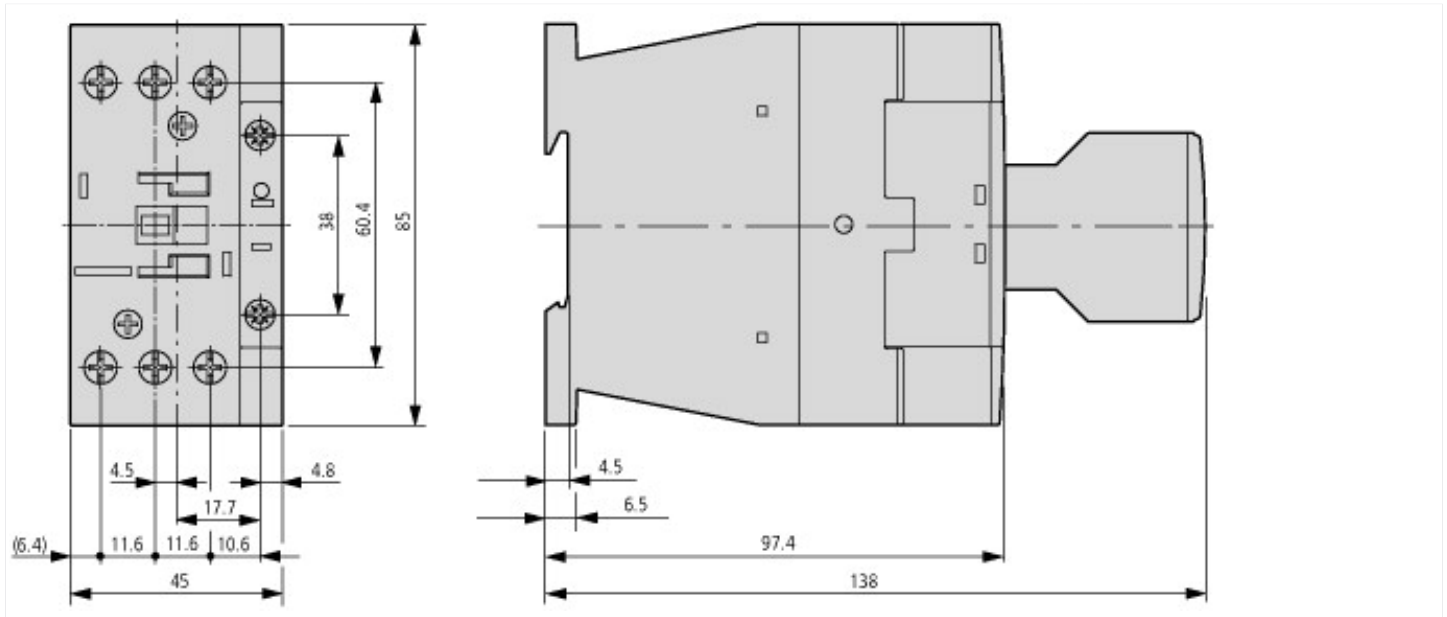
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])

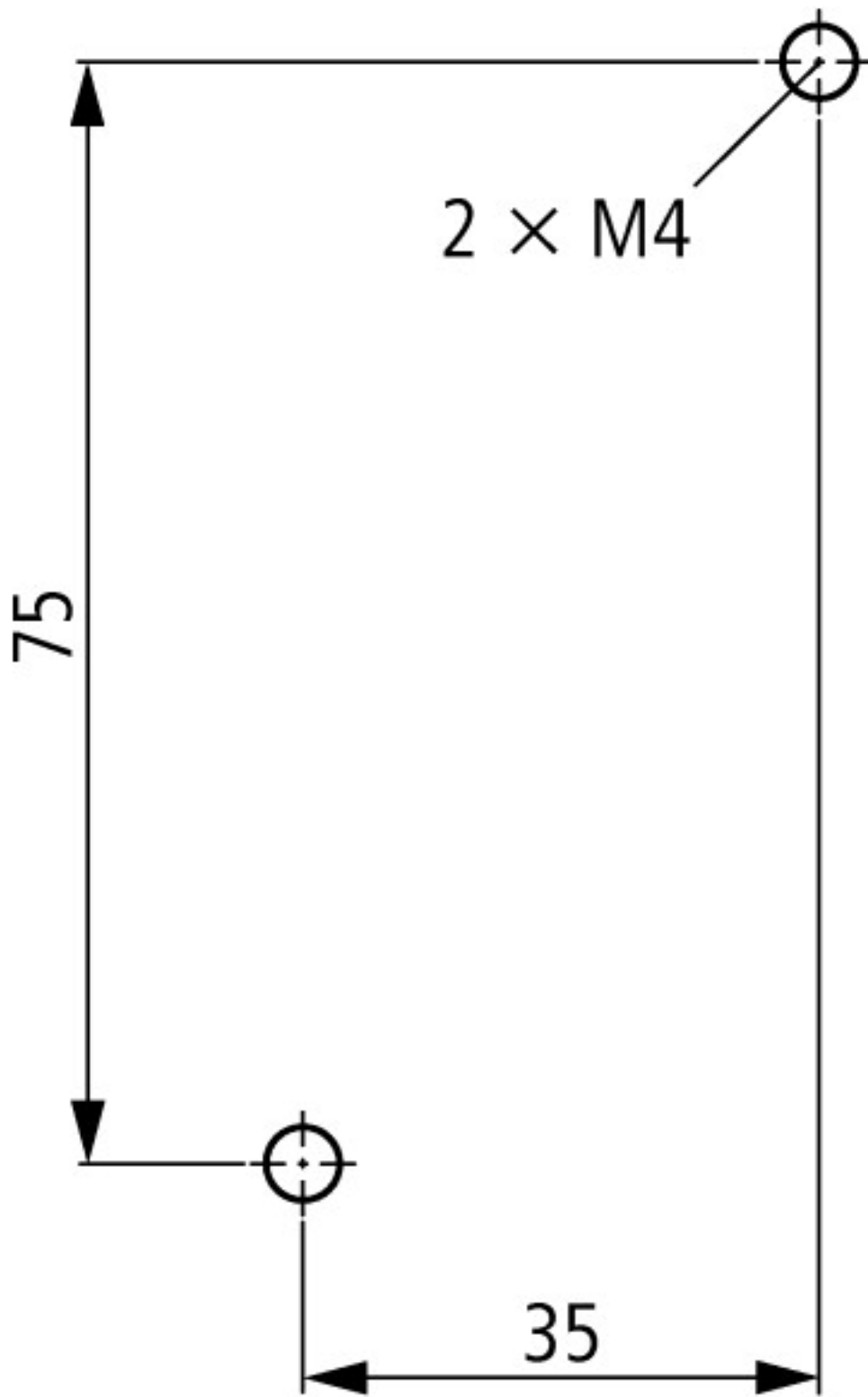
Rated control supply voltage $U_s$ at AC 50HZ	V	230 - 230
Rated control supply voltage $U_s$ at AC 60HZ	V	240 - 240
Rated control supply voltage $U_s$ at DC	V	0 - 0
Voltage type for actuating		AC
Rated operation current $I_e$ at AC-1, 400 V	A	20
Rated operation current $I_e$ at AC-3, 400 V	A	0
Rated 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
Number of main contacts as normally open contact		3

## Approvals

Product Standards		IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CE marking
UL File No.		E29096
UL Category Control No.		NLDX
CSA File No.		012528
CSA Class No.		3211-04
North America Certification		UL listed, CSA certified
Specially designed for North America		No

## Dimensions





distance at side to earthed parts: 6 mm

## Assets (links)

### Declaration of CE Conformity

00002883

### Instruction Leaflets

IL03407047Z2018\_05