104401
DILL12(24V50HZ)

DELIVERY PROGRAM

Product range
DILL Lighting contactors

Application
Contactors for lighting systems

Utilization category
AC-1: Non-inductive or slightly inductive loads, resistance furnaces

Rated operational current

AC-5a
220 V 230 V [I_e]
12 A

AC-5a
380 V 400 V [I_e]
12 A

AC-5b

220 V 230 V [I_e]
14 A

AC-5b
380 V 400 V [I_e]
14 A

AC-1
Conventional free air thermal current, 3 pole, 50 - 60 Hz
Open
at 40 °C [$I_{th} = I_e$]
27 A

Contact sequence

Actuating voltage
24 V 50 Hz

Note

Switchgear for lighting systems

	DIL	L12	L18	L20	M7	M9	M12	M17	M25	M32	M40	M50
Permissible compensation capacitance	Cmax [mF]	470	470	470	47	80	100	220	330	470	470	500
Filament lamp	Ie [A]	14	21	27	6	7.5	10	14	21	27	33	42
Mercury blended lamps	Ie [A]	12	16	23	5	6.5	8.5	12	16	23	30	38
Fluorescent lamps, conventional - reactor – starter – connection	Ie [A]	20	26	35	9	10	15	20	26	35	41	45
Fluorescent lamps, conventional - reactor – starter – connection	Ie [A]	20	26	35	5.5	8	13	15	22.5	29	36	47
Fluorescent lamps, duo circuit (series compensated)	Ie [A]	12	18	20	5	6.5	8.5	12	17.5	22.5	28	35

electronic upstream devices and LED lamps	Ie [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
High-pressure mercury-arc lamps	Ie [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
Metal-halide lamps	Ie [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
Low-pressure sodium lamps	Ie [A]	7.5	10	12	3	4	6	7.5	10	12	15	22
	DIL	M65	M80	M95	M115	M150	M185A	M225A	M250A	M300A	M400A	M500A
Permissible compensation capacitance	Cmax [mF]	500	550	620	830	970	2055	2300	2600	3000	3250	3500
Filament lamp	Ie [A]	55	67	79	95	125	153	187	208	349	332	415
Mercury blended lamps	Ie [A]	45	65	67	80	110	123	150	167	200	266	332
Fluorescent lamps, conventional - reactor – starter – connection	Ie [A]	55	95	100	125	145	207	237	263	300	375	525
Fluorescent lamps, conventional - reactor – starter – connection	Ie [A]	59	71	95	100	138	186	213	236	270	338	473
Fluorescent lamps, duo circuit (series compensated)	Ie [A]	45.5	56	66.5	80.5	105	130	158	175	210	280	350
electronic upstream devices and LED lamps	Ie [A]	36	55	60	80	95	138	158	175	200	250	350
High-pressure mercury-arc lamps	Ie [A]	36	55	60	80	95	138	158	175	200	250	350
Metal-halide lamps	Ie [A]	36	55	60	80	95	138	158	175	200	250	350
Low-pressure sodium lamps	Ie [A]	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]
1 x 10^6

Operating frequency, mechanical
AC operated [Operations/h]
60

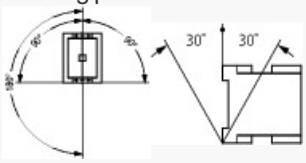
Climatic proofing
Damp heat, constant, to IEC 60068-2-78
Damp heat, cyclic, to IEC 60068-2-30

Ambient temperature
Open
-25 - +60 °C

Ambient temperature
Enclosed
- 25 - 40 °C

Ambient temperature
Storage
- 40 - 80 °C

Mounting position



Mechanical shock resistance (IEC/EN 60068-2-27)
Half-sinusoidal shock, 10 ms
Mechanical shock resistance
6.9 g

Degree of Protection
IP00

Altitude
Max. 2000 m

Weight
AC operated
0.42 kg

Main conducting paths

Rated impulse withstand voltage [U_{imp}]
8000 V AC

Overvoltage category/pollution degree
III/3

Rated insulation voltage [U_i]
690 V AC

Rated operational voltage [U_e]
690 V AC

Making capacity
238 A

Breaking capacity [380 … 400 V]
170 A

Lifespan, electrical [Operations]
10000

Short-circuit protection maximum fuse
400 V [gG/gL 500 V]
63 A

AC

AC-1
Rated operational current
Conventional free air thermal current, 3 pole, 50 - 60 Hz
Open
at 40 °C [$I_{th} = I_e$]
27 A

AC-1
Rated operational current
Conventional free air thermal current, 3 pole, 50 - 60 Hz
Open
at 60 °C [$I_{th} = I_e$]
24 A

AC-5a operation
220 V 230 V [I_e]
12 A

AC-5a operation
380 V 400 V [I_e]
12 A

AC-5b operation
220 V 230 V [I_e]
14 A

AC-5b operation
380 V 400 V [I_e]
14 A

AC-5b operation
380 V 400 V [I_e]
14 A

Electric lamps
Filament bulbs
14 A

Electric lamps
Mercury blended lamps
12 A

Electric lamps
Fluorescent lamp load
Conventional reactor starter circuit
20 A

Electric lamps
Fluorescent lamp load
Duo circuit
20 A

Electric lamps
Electronic upstream devices
12 A

Electric lamps
High-pressure mercury vapour lamps
12 A

Electric lamps
Metal-halide lamps
12 A

Electric lamps
High-pressure sodium lamps
12 A

Electric lamps
Low-pressure sodium lamps
7.5 A

Electric lamps
Maximum permissible compensation capacitance
470 µF

Current heat loss

Current heat loss at I_e to AC-5b/400 V
1.2 W

Impedance per pole
2.65 mΩ

Magnet systems

Voltage tolerance
AC operated [Pick-up]
Min. pick-up voltage, AC operated
0.8 x U_c

Voltage tolerance
AC operated [Pick-up]

Pick-up voltage AC operated, max.
1.1 x U_c

Voltage tolerance
Drop-out voltage AC operated [Drop-out]
Drop-out voltage, AC-operated, min.
0.3 x U_c

Power consumption of the coil in a cold state and
1.0 x U_S
Dual-voltage coil 50 Hz [Pick-up]
52 VA

Power consumption of the coil in a cold state and
1.0 x U_S
Dual-voltage coil 50 Hz [Sealing]
7.1 VA

Power consumption of the coil in a cold state and
1.0 x U_S
Dual-voltage coil 50 Hz [Sealing]
2.1 W

Power consumption of the coil in a cold state and
1.0 x U_S
Dual-voltage coil 60 Hz [Pick-up]
67 VA

Power consumption of the coil in a cold state and
1.0 x U_S
Dual-voltage coil 60 Hz [Sealing]
8.7 VA

Power consumption of the coil in a cold state and
1.0 x U_S
Dual-voltage coil 60 Hz [Sealing]
2.1 W

Duty factor
100 % DF

Operating times
Closing delay
Switching times of main contacts AC operated
Closing delay, min.
16 ms

Operating times
Closing delay
Switching times of main contacts AC operated

Closing delay, max.
22 ms

Operating times
Opening delay
Switching times of main contacts AC operated
Opening delay, min.
8 ms

Operating times
Opening delay
Switching times of main contacts AC operated
Opening delay, max.
14 ms

Additional technical data

like the contactar [DIL]
M17

Rating data for approved types

Switching capacity
General use
24 A

Short Circuit Current Rating
Basic Rating
SCCR
5 kA

Short Circuit Current Rating
Basic Rating
max. Fuse
125 A

Short Circuit Current Rating
Basic Rating
max. CB
125 A

Short Circuit Current Rating
480 V High Fault
SCCR (fuse)
100 kA

Short Circuit Current Rating
480 V High Fault
max. Fuse

70 Class J A

Short Circuit Current Rating
480 V High Fault
SCCR (CB)
22 kA

Short Circuit Current Rating
480 V High Fault
max. CB
32 A

Short Circuit Current Rating
600 V High Fault
SCCR (fuse)
100 kA

Short Circuit Current Rating
600 V High Fault
max. Fuse
70 Class J A

Short Circuit Current Rating
600 V High Fault
SCCR (CB)
22 kA

Short Circuit Current Rating
600 V High Fault
max. CB
32 A

Special Purpose Ratings
Incandescent Lamps (Tungsten)
480V 60Hz 3phase, 277V 60Hz 1phase
24 A

Special Purpose Ratings
Incandescent Lamps (Tungsten)
600V 60Hz 3phase, 347V 60Hz 1phase
24 A

Electromagnetic compatibility (EMC)

Emitted interference
According to EN 60947-1

Interference immunity
According to EN 60947-1

DESIGN VERIFICATION AS PER IEC/EN 61439

Technical data for design verification

Rated operational current for specified heat dissipation [I_n]
14 A

Heat dissipation per pole, current-dependent [P_{vid}]
0.4 W

Equipment heat dissipation, current-dependent [P_{vid}]
1.2 W

Static heat dissipation, non-current-dependent [P_{vs}]
2.1 W

Heat dissipation capacity [P_{diss}]
0 W

Operating ambient temperature min.
-25 °C

Operating ambient temperature max.
+60 °C

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 Strength of materials and parts
10.2.3.1 Verification of thermal stability of enclosures
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.3.2 Verification of resistance of insulating materials to normal heat
Meets the product standard's requirements.

10.2 Strength of materials and parts
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 Strength of materials and parts
10.2.4 Resistance to ultra-violet (UV) radiation
Meets the product standard's requirements.

10.2 Strength of materials and parts
10.2.5 Lifting
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
10.2.6 Mechanical impact
Does not apply, since the entire switchgear needs to be evaluated.

10.2 Strength of materials and parts
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 Insulation properties
10.9.3 Impulse withstand voltage
Is the panel builder's responsibility.

10.9 Insulation properties
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 Us at AC 50HZ
24 - 24 V

Rated control supply voltage Us at AC 60HZ

0 - 0 V

Rated control supply voltage Us at DC
0 - 0 V

Voltage type for actuating
AC

Rated operation current Ie at AC-1, 400 V
12 A

Rated operation current Ie at AC-3, 400 V
0 A

Rated operation power at AC-3, 400 V
0 kW

Rated operation current Ie at AC-4, 400 V
0 A

Rated operation power at AC-4, 400 V
0 kW

Rated operation power NEMA
0 kW

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

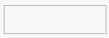
CSA File No.
012528

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

DILL12...20