



DILH600/22(RA250) - Contactor, I<sub>th</sub> = I<sub>e</sub>: 850 A, RA 250: 110 - 250 V 40 - 60 Hz/110 - 350 V DC, AC and DC operation, Screw connection



**197905**  
DILH600/22(RA250)

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## DELIVERY PROGRAM

Product range  
Contactors

Application  
Mains contactors for resistive loads from 1000 A

Subrange  
AC-1 contactors greater than 1000 A

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

Connection technique  
Screw connection

### Rated operational current

AC-1  
Conventional free air thermal current, 3 pole, 50 - 60 Hz

Open  
at 40 °C [ $I_{th}=I_e$ ]  
850 A

AC-1  
Conventional free air thermal current, 3 pole, 50 -  
60 Hz  
enclosed [ $I_{th}$ ]  
600 A

AC-1  
Conventional free air thermal current, 1 pole  
open [ $I_{th}$ ]  
1738 A

Contact sequence



For use with  
DILH800-XH1...

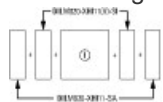
Actuating voltage  
RA 250: 110 - 250 V 40 - 60 Hz/110 - 350 V DC

Voltage AC/DC  
AC and DC operation

## Auxiliary contacts

possible variants at auxiliary contact module fitting  
options  
sidewise: 2 x DILH800-XH11(V)-SI; 2 x DILH800-  
XH11-SA

Side mounting auxiliary contacts



## Instructions

Interlocked opposing contacts according to IEC/EN  
60947-5-1 Appendix L, inside the auxiliary contact  
module

Auxiliary contacts used as mirror contacts  
according to IEC/EN 60947-4-1 Appendix F (not  
N/C late open)

integrated suppressor circuit in actuating  
electronics  
660 V, 690 V or 1000 V: not directly reversing

## TECHNICAL DATA

### General

Standards  
IEC/EN 60947, VDE 0660, UL, CSA, CCC

Lifespan, mechanical  
AC operated [Operations]  
 $3 \times 10^6$

Lifespan, mechanical  
DC operated [Operations]  
 $3 \times 10^6$

Operating frequency, mechanical  
AC operated [Operations/h]  
1000

Operating frequency, mechanical  
DC operated [Operations/h]  
1000

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

Ambient temperature  
Open  
-40 - +70 °C

Ambient temperature  
Storage  
- 40 - + 80 °C

Mounting position

<input type="checkbox"/>	<input type="checkbox"/>
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Mechanical shock resistance (IEC/EN 60068-2-27)  
Half-sinusoidal shock, 10 ms

Main contacts  
NO contact  
10 g

Mechanical shock resistance (IEC/EN 60068-2-27)  
Half-sinusoidal shock, 10 ms  
Auxiliary contacts  
NO contact  
10 g

Mechanical shock resistance (IEC/EN 60068-2-27)  
Half-sinusoidal shock, 10 ms  
Auxiliary contacts  
NC contact  
8 g

Degree of Protection  
IP00

Altitude  
Max. 2000 m

Weight  
9.5 kg

Terminal capacity main cable  
Flexible with cable lug  
50 - 240 mm<sup>2</sup>

Terminal capacity main cable  
Stranded with cable lug  
70 - 240 mm<sup>2</sup>

Terminal capacity main cable  
Busbar [Width]  
50 mm

Main cable connection screw/bolt  
M10

Tightening torque  
24 Nm

Terminal capacity control circuit cables  
Solid  
1 x (0.75 - 2.5)  
2 x (0.75 - 2.5) mm<sup>2</sup>

Terminal capacity control circuit cables

Flexible with ferrule

1 x (0.75 - 2.5)

2 x (0.75 - 2.5) mm<sup>2</sup>

Terminal capacity control circuit cables

Solid or stranded

18 - 14 AWG

Stripping length

10 mm

Control circuit cable connection screw/bolt

M3.5

Tightening torque

1.2 Nm

Tool

Main cable

Width across flats

16 mm

Tool

Control circuit cables

Pozidriv screwdriver

2 Size

Tool

Control circuit cables

Standard screwdriver

0.8 x 5.5/1 x 6 mm

## Main conducting paths

Rated impulse withstand voltage [ $U_{imp}$ ]

12000 V AC

Overvoltage category/pollution degree

III/3

Rated insulation voltage [ $U_i$ ]

1000 V AC

Rated operational voltage [ $U_e$ ]

1000 V AC

Safe isolation to EN 61140  
between coil and contacts  
1000 V AC

Safe isolation to EN 61140  
between the contacts  
1000 V AC

Making capacity (p.f. to IEC/EN 60947)  
6000 A

Breaking capacity  
220 V 230 V  
4800 A

Breaking capacity  
380 V 400 V  
4800 A

Breaking capacity  
500 V  
4800 A

Breaking capacity  
660 V 690 V  
2000 A

Breaking capacity  
1000 V  
1575 A

Short-circuit rating  
Short-circuit protection maximum fuse  
AC-1  
400 V [aR 500 V]  
1260 (2 x 630) A

Short-circuit rating  
Short-circuit protection maximum fuse  
AC-1  
690 V [aR 690 V]  
1260 (2 x 630) A

Short-circuit rating  
Short-circuit protection maximum fuse  
AC-1  
1000 V [aR 1000 V]  
1260 (2 x 630) A

## AC

AC-1

Rated operational current

Conventional free air thermal current, 3 pole, 50 -  
60 Hz

Open

at 40 °C [ $I_{th} = I_e$ ]

850 A

AC-1

Rated operational current

Conventional free air thermal current, 3 pole, 50 -  
60 Hz

Open

at 50 °C [ $I_{th} = I_e$ ]

760 A

AC-1

Rated operational current

Conventional free air thermal current, 3 pole, 50 -  
60 Hz

Open

at 55 °C [ $I_{th} = I_e$ ]

725 A

AC-1

Rated operational current

Conventional free air thermal current, 3 pole, 50 -  
60 Hz

Open

at 60 °C [ $I_{th} = I_e$ ]

695 A

AC-1

Rated operational current

Conventional free air thermal current, 3 pole, 50 -  
60 Hz

enclosed [ $I_{th}$ ]

600 A

AC-1

Rated operational current

Conventional free air thermal current, 1 pole

Note

at maximum permissible ambient air temperature

AC-1

Rated operational current

Conventional free air thermal current, 1 pole

open [ $I_{th}$ ]

1738 A

## Current heat loss

3 pole, at  $I_{th}$  (60°)  
37.3 W

Current heat loss at  $I_e$  to AC-3/400 V  
0.026 W

## Magnet systems

Voltage tolerance  
 $U_S$   
110 - 250 V 40-60 Hz  
110 - 350 V DC

Voltage tolerance  
AC operated [Pick-up]  
 $0.7 \times U_{Smin} - 1.15 \times U_{Smax}$

Voltage tolerance  
DC operated [Pick-up]  
 $0.7 \times U_{Smin} - 1.15 \times U_{Smax}$

Voltage tolerance  
AC operated [Drop-out]  
 $0.2 \times U_{Smax} - 0.6 \times U_{Smin}$

Voltage tolerance  
DC operated [Drop-out]  
 $0.2 \times U_{Smax} - 0.6 \times U_{Smin}$

Power consumption of the coil in a cold state and  
 $1.0 \times U_S$   
Note on power consumption  
Control transformer with  $u_k \square 7\%$

Power consumption of the coil in a cold state and  
 $1.0 \times U_S$   
Pull-in power [Pick-up]  
450 VA

Power consumption of the coil in a cold state and  
 $1.0 \times U_S$   
Pull-in power [Pick-up]  
350 W



Power consumption of the coil in a cold state and  
 $1.0 \times U_S$   
Sealing power [Sealing]  
4.3 VA

Power consumption of the coil in a cold state and  
 $1.0 \times U_S$   
Sealing power [Sealing]  
3.3 W

Duty factor  
100 % DF

Changeover time at 100 %  $U_S$  (recommended  
value)  
Main contacts  
Closing delay  
60 ms

Changeover time at 100 %  $U_S$  (recommended  
value)  
Main contacts  
Opening delay  
50 ms

Behaviour in marginal and transitional conditions  
Sealing  
Voltage interruptions  
( $0 \dots 0.2 \times U_{c,min}$ )  $\square$  10 ms  
Time is bridged specifically

Behaviour in marginal and transitional conditions  
Sealing  
Voltage interruptions  
( $0 \dots 0.2 \times U_{c,min}$ )  $>$  10 ms  
Contactor drop-out

Behaviour in marginal and transitional conditions  
Sealing  
Voltage drops  
( $0.2 \dots 0.6 \times U_{c,min}$ )  $\square$  12 ms  
Time is bridged specifically

Behaviour in marginal and transitional conditions  
Sealing  
Voltage drops  
( $0.2 \dots 0.6 \times U_{c,min}$ )  $>$  12 ms  
Contactor drop-out

Behaviour in marginal and transitional conditions

Sealing  
Voltage drops  
( $0.6 \dots 0.7 \times U_{c, \min}$ )  
Contactor remains switched on

Behaviour in marginal and transitional conditions  
Sealing  
Excess voltage  
( $1.15 \dots 1.3 \times U_{c, \max}$ )  
Contactor remains switched on

Behaviour in marginal and transitional conditions  
Sealing  
Pick-up phase  
( $0 \dots 0.7 \times U_{c, \min}$ )  
Contactor does not switch on

Behaviour in marginal and transitional conditions  
Sealing  
Pick-up phase  
( $0.7 \times U_{c, \min} \dots 1.15 \times U_{c, \max}$ )  
Contactor switches on properly

Admissible transitional contact resistance (of the external control circuit device when actuating A11)  
 500 m $\Omega$

FLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2)  
High  
15 V

FLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2)  
Low  
5 V

## Electromagnetic compatibility (EMC)

Electromagnetic compatibility  
This product has been designed for use in the industrial sector (Environment A). Use in the residential area (Environment B) can produce radio interference, therefore additional interference suppression measures must be provided.

## Rating data for approved types

Auxiliary contacts

Flot Duty  
AC operated  
A600

Auxiliary contacts  
Flot Duty  
DC operated  
P300

Auxiliary contacts  
General Use  
AC  
600 V

Auxiliary contacts  
General Use  
AC  
6 A

Auxiliary contacts  
General Use  
DC  
250 V

Auxiliary contacts  
General Use  
DC  
1 A

Special Purpose Ratings  
Resistance Air Heating  
480V 60Hz 3phase, 277V 60Hz 1phase  
700 A

Special Purpose Ratings  
Resistance Air Heating  
600V 60Hz 3phase, 347V 60Hz 1phase  
700 A

## DESIGN VERIFICATION AS PER IEC/EN 61439

### Technical data for design verification

Rated operational current for specified heat  
dissipation [I<sub>n</sub>]  
650 A

Equipment heat dissipation, current-dependent

[ $P_{vid}$ ]

0 W

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

7.9 W

Heat dissipation capacity [ $P_{diss}$ ]

0 W

Operating ambient temperature min.

-40 °C

Operating ambient temperature max.

+70 °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 8.0

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  
110 - 250 V

Rated control supply voltage  $U_s$  at AC 60HZ  
110 - 250 V

Rated control supply voltage  $U_s$  at DC  
110 - 350 V

Voltage type for actuating  
AC/DC

Rated operation current  $I_e$  at AC-1, 400 V  
850 A

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

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

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

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

Rated operation power NEVA  
0 kW

Modular version  
No

Number of auxiliary contacts as normally open  
contact  
2

Number of auxiliary contacts as normally closed  
contact  
2

Type of electrical connection of main circuit  
Rail connection

Number of normally closed contacts as main  
contact  
0

Number of normally open contacts as main 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

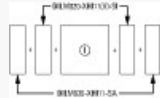
CSA Class No.  
3211-04

North America Certification  
UL listed, CSA certified

Specially designed for North America  
No

## CHARACTERISTICS

Side mounting auxiliary contacts



possible variants at auxiliary contact module fitting  
options  
sidewise: 2 x DILH800-XH11(V)-SI; 2 x DILH800-  
XH11-SA

Characteristic curve



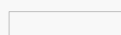
Electrical lifespan AC-1

Characteristic curve



Short-time loading, 3-pole  
Time interval between two loading cycles: 15  
minutes

## DIMENSIONS







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