DATASHEET - DILH600/22(RA110)



Contactor, Ith =le: 850 A, RA 110: 48 - 110 V 40 - 60 Hz/48 - 110 V DC, AC and DC operation, Screw connection



Powering Business Worldwide

Part no. DILH600/22(RA110)
Catalog No. 197904

Alternate Catalog XTCEH600M22Y

No.

Delivery program

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	$I_{th} = I_e$	Α	850
enclosed	I _{th}	Α	600
Conventional free air thermal current, 1 pole			
open	I _{th}	Α	1738
Contact sequence			A1
For use with			DILH800-XHI
Actuating voltage			RA 110: 48 - 110 V 40 - 60 Hz/48 - 110 V DC
Voltage AC/DC			AC and DC operation
Auxiliary contacts			
possible variants at auxiliary contact module fitting options			sidewise: 2 x DILH800-XHI11(V)-SI; 2 x DILH800-XHI11-SA
Side mounting auxiliary contacts			DILM820-XH111(V)-SI DILM820-XH111-SA DILM820-XH111-SA
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)
Instructions			integrated suppressor circuit in actuating electronics 660 V, 690 V or 1000 V: not directly reversing

Technical data

General

General			
Standards			IEC/EN 60947, VDE 0660, UL, CSA, CCC
Lifespan, mechanical			
AC operated	Operations	x 10 ⁶	3
DC operated	Operations	x 10 ⁶	3
Operating frequency, mechanical			
AC operated	Operations/h		1000
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		°C	-40 - +70
Storage		°C	- 40 - + 80

Mechanical shock resistance (IECEN 80888-2-27) Helf aimusoidal shock, 10 ms Main contacts NIO contact Audilary contacts NIO contact NIO contact contaction screw/both NIO contact contact contaction screw/both NIO contact contact contact contaction screw/both NIO contact co	Mounting position			30°
Main contacts				
Main contacts	Mechanical shock resistance (IEC/EN 60068-2-27)			
NO centact Auxillary centracts NO centact	Half-sinusoidal shock, 10 ms			
Auxiliary contacts W g 10 N/C contact g g 10 Degree of Protection P0 P0 Altitude F0 P0 Weight W m Max 2000 Terminal capacity main cable W T0 \$0 Flexible with cable lug mm² \$0 24 Busbar Midh mm² \$0 Main cable connection screwfbolt mm² \$0 Topininal capacity control circuit cables mm² \$1 Elexible with ferrule mm² \$1 \$1 Solid or stranded mm² \$1 \$1 Solid or stranded connection screw/bolt mm² \$1 \$1 Control circuit cable connection screw/bolt mm² \$1 \$1 Topingang mm² \$1 \$1 Width across flats mm² \$1 \$1 Main cable mm² \$1 \$1 Width across flats mm² \$1 \$1	Main contacts			
N/O contact	N/O contact		g	10
N/C contact	Auxiliary contacts			
Degree of Protection IPO Altitude m Max 2000 Velight Very kg 5 Terminal capacity main cable Very mr 0 20 Flexible with cable lug mr 0 0 20 0 Bushar Width mm 5 0	N/O contact		g	10
Melight	N/C contact		g	8
Weight kg 95 Terminal capacity main cable mar² 50-240 Flexiblio with cable lug mm² 50-240 Busbar mm² 70-240 Main cable connection screwbolt mm² 50-240 Main cable connection screwbolt mm² 24-24 Terminal capacity control circuit cables mm² 14-10,75-25) Solid mm² 11-10,75-25) Plaxible with ferrule mm² 11-10,75-25) Solid or stranded mm² 11-10,75-25) Minc cable mm² 11-10,75-25) Main cable mm² 11-10,75-25) Main cable mm² 11-10,75-25 With a cross flats mm² 11-10,75-25 Stranded screwdriver mm²	Degree of Protection			IP00
Flexible with cable lug	Altitude		m	Max. 2000
Flexible with cable lug	Weight		kg	9.5
Stranded with cable lug mm² 70 - 240 Busbar Width mm² 50 Main cable connection screw/bolt M10 24 Tightening torque Nm 24 Solid mm² 1 x (0.75 - 2.5) Solid mm² 1 x (0.75 - 2.5) Flexible with ferrule mm² 1 x (0.75 - 2.5) Solid or stranded AWG 18 - 14 Stripping length mm 10 Control circuit cable connection screw/bolt mm 10 Tightening torque mm 1.2 Tool M3.5 3.5 Main cable mm 1.2 Width across flats mm 1.6 Control circuit cables mm 1.6 Posidriv screwdriver size 2 Standard screwdriver mm 0.8 x 5.5/1 x 6 Rated dimpulse withstand voltage U _{imp} VAC 1000 Overvoltage category/jollution degree U _{im} VAC 1000 Rated insulation voltage	Terminal capacity main cable			
Stranded with cable lug Width mm² 70 - 240 Busbar Width mm 50 Main cable connection screw/bolt MID MID Tightening torque Nm 24 Ferminal capacity control circuit cables Ix (0.75 - 2.5) Ix (0.75 - 2.5) Solid mm² 1 x (0.75 - 2.5) Ix (0.75 - 2.5) Solid or stranded AWG 1x 14 Ix (0.75 - 2.5) Solid or stranded MWG 1x 14 Ix (0.75 - 2.5) Solid or stranded MWG 1x 14 Ix (0.75 - 2.5) Solid or stranded MWG 1x 14 Ix (0.75 - 2.5) Solid or stranded MWG 1x 14 Ix (0.75 - 2.5) Solid or stranded MWG 1x 14 IX (0.75 - 2.5) Solid or stranded Solid or stranded MWG 1x 14 Stranded with cable MWG 1x 14 IX (0.75 - 2.5) Main cable MWG 1x 14 IX (0.75 - 2.5) IX (0.75 - 2.5) Polidirius screwdriver Size Size 2 <	Flexible with cable lug		mm ²	50 - 240
Busbar Wridth mm 50 Main cable connection screw/bolt Nm 24 Tightening torque Nm 24 Terminal capacity control circuit cables Terminal capacity control circuit cables Terminal capacity control circuit cables Solid mm² 1 x (0.75 - 2.5) 2 x (0.75 - 2.5) Flaxible with ferrule AWG 12 x (0.75 - 2.5) 2 x (0.75 - 2.5) Solid or stranded Mm² 1 2 x (0.75 - 2.5) 2 x (0.75 - 2.5) Solid or stranded Mm² 1 2 x (0.75 - 2.5) 2 x (0.75 - 2.5) Stripping length mm² 10 Control circuit cable connection screw/bolt mm² 1.2 Tightening torque Mm² 1.2 Main cable Mm² 1.2 Width across flats Mm² 1.2 Control circuit cables Size 2 Pozidriv screwdriver Size 2 Standard screwdriver Mm² 0.8x x 5.51 x 6 Standard screwdriver Mm² 0.8x x 5.51 x 6 Standard screwdriver Mm² 0.00 W	Stranded with cable lug		mm ²	70 - 240
Main cable connection screw/bolt M10 Tightening torque Nm 24 Terminal capacity control circuit cables Imm² 1 x (0.75 - 2.5) Solid mm² 1 x (0.75 - 2.5) Flexible with ferrule mm² 1 x (0.75 - 2.5) Solid or stranded AWG 18 - 14 Stripping length M3.5 M3.5 Control circuit cable connection screw/bolt M3.5 M3.5 Tightening torque Mm 1.2 Main cable mm 16 Width across flats mm 16 Control circuit cables Size 2 Pozidriv screwdriver Size 2 Standard screwdriver mm 0.8 x 55/1 x 6 Main conducting paths Uimp V AC 1000 Rated impulse withstand voltage Ui V AC 1000 Overvoltage category/pollution degree III/3 1000 Rated insulation voltage Ue V AC 1000 Sale Sale 1000 1000 <td></td> <td>Width</td> <td></td> <td></td>		Width		
Tightening torque		vvidti		
Terminal capacity control circuit cables			Nm	
Solid			IVIII	LT
Solid or stranded 2x (0.75 - 2.5) Solid or stranded mm 10 Control circuit cable connection screw/bolt mm 10 Tightening torque M3.5 Tightening torque M3.5 Tightening torque M6.5 Main cable M6.5 Control circuit cables M7.5 Pozidriv screwdriver Size 2 Standard screwdriver mm 0.8 x 5.5/1 x 6 Main conducting paths Rated impulse withstand voltage Uimp V AC 1000 Rated operational voltage Ue V AC 1000 Rated operational voltage Ue V AC 1000 Rated operational voltage Ue V AC 1000			mm ²	
Stripping length Control circuit cable connection screw/bolt Tightening torque Tool Main cable Width across flats Control circuit cables Pozidriv screwdriver Standard screwdriver Standard screwdriver Main conducting paths Rated impulse withstand voltage Uimp VAC 1000 Vervoltage category/pollution degree Rated operational voltage Ui Rated operational voltage Ui Rated operational voltage Ui VAC 1000 Safe isolation to EN 61140	Flexible with ferrule		mm ²	
Control circuit cable connection screw/bolt Tightening torque Nm 1.2 Tool Main cable Width across flats Control circuit cables Pozidriv screwdriver Standard screwdriver Standard screwdriver Main conducting paths Rated impulse withstand voltage Uimp VAC 12000 Overvoltage category/pollution degree Rated operational voltage Ui VAC 1000 Rated operational voltage VAC 1000 Safe isolation to EN 61140	Solid or stranded		AWG	18 - 14
Tightening torque Nm 1.2 Tool Main cable Width across flats mm 16 Control circuit cables Pozidriv screwdriver Size 2 Standard screwdriver mm 0.8 x 5.5/1 x 6 Main conducting paths Rated impulse withstand voltage U _{imp} V AC 12000 Overvoltage category/pollution degree Rated operational voltage U _e V AC 1000 Rated operational voltage U _e V AC 1000 Safe isolation to EN 61140	Stripping length		mm	10
Tool Main cable Width across flats Pozidriv screwdriver Size Standard screwdriver Standard screwdriver Main conducting paths Rated impulse withstand voltage Uimp VAC 12000 III/3 Rated operational voltage Ui VAC VAC 1000 Rated operational voltage VAC VAC 1000 Safe isolation to EN 61140	Control circuit cable connection screw/bolt			M3.5
Main cable Width across flats Control circuit cables Pozidriv screwdriver Size 2 Standard screwdriver mm 0.8 x 5.5/1 x 6 Main conducting paths Rated impulse withstand voltage Uimp VAC 12000 Overvoltage category/pollution degree Rated operational voltage Ui VAC 1000 Rated operational voltage Ue VAC 1000 Safe isolation to EN 61140	Tightening torque		Nm	1.2
Width across flats Control circuit cables Pozidriv screwdriver Size 2 Standard screwdriver mm 0.8 x 5.5/1 x 6 Main conducting paths Rated impulse withstand voltage Uimp V AC 12000 Overvoltage category/pollution degree Ui V AC 1000 Rated operational voltage Ue V AC 1000 Safe isolation to EN 61140	Tool			
Control circuit cables Pozidriv screwdriver Size 2 Standard screwdriver mm 0.8 x 5.5/1 x 6 Main conducting paths Rated impulse withstand voltage Uimp V AC 12000 Overvoltage category/pollution degree Rated insulation voltage Ui V AC 1000 Rated operational voltage Ue V AC 1000 Safe isolation to EN 61140	Main cable			
Pozidriv screwdriver Size 2 Standard screwdriver mm 0.8 x 5.5/1 x 6 Main conducting paths Rated impulse withstand voltage Uimp V AC 12000 Overvoltage category/pollution degree III/3 Rated insulation voltage Ui V AC 1000 Rated operational voltage Ue V AC 1000 Safe isolation to EN 61140	Width across flats		mm	16
Standard screwdriver mm 0.8 x 5.5/1 x 6 Main conducting paths Rated impulse withstand voltage U _{imp} V AC 12000 Overvoltage category/pollution degree III/3 Rated insulation voltage U _i V AC 1000 Rated operational voltage U _e V AC 1000 Safe isolation to EN 61140	Control circuit cables			
Main conducting paths Rated impulse withstand voltage Overvoltage category/pollution degree Rated insulation voltage Ui V AC 12000 III/3 Rated insulation voltage Ui V AC 1000 Rated operational voltage Ue V AC 1000	Pozidriv screwdriver		Size	2
Rated impulse withstand voltage Overvoltage category/pollution degree Rated insulation voltage Ui V AC 12000 III/3 Rated insulation voltage Ui V AC 1000 Safe isolation to EN 61140	Standard screwdriver		mm	0.8 x 5.5/1 x 6
Overvoltage category/pollution degree III/3 Rated insulation voltage U _i V AC 1000 Rated operational voltage U _e V AC 1000 Safe isolation to EN 61140				
Rated insulation voltage Ui VAC 1000 Rated operational voltage Ue VAC 1000 Safe isolation to EN 61140	Rated impulse withstand voltage	U _{imp}	V AC	12000
Rated operational voltage U _e V AC 1000 Safe isolation to EN 61140	Overvoltage category/pollution degree			III/3
Safe isolation to EN 61140	Rated insulation voltage	Ui	V AC	1000
	Rated operational voltage	U _e	V AC	1000
between coil and contacts V AC 1000	Safe isolation to EN 61140			
	between coil and contacts		V AC	1000
between the contacts V AC 1000	between the contacts		V AC	1000
Making capacity (p.f. to IEC/EN 60947) A 6000	Making capacity (p.f. to IEC/EN 60947)		Α	6000
Breaking capacity	Breaking capacity			
220 V 230 V A 4800	220 V 230 V		Α	4800
380 V 400 V A 4800	380 V 400 V		Α	4800
500 V A 4800	500 V		Α	4800
660 V 690 V A 2000	660 V 690 V		Α	2000
1000 V A 1575	1000 V		Α	1575
Short-circuit rating	Short-circuit rating			
Short-circuit protection maximum fuse	Short-circuit protection maximum fuse			
AC-1	AC-1			
400 V aR 500 V A 1260 (2 x 630)	400 V	aR 500 V	Α	1260 (2 x 630)

COOM	- D 000 14	•	1000 (0 000)
690 V	aR 690 V	A	1260 (2 x 630)
1000 V AC	aR 1000 V	Α	1260 (2 x 630)
AC-1			
Rated operational current			
Conventional free air thermal current, 3 pole, 50 - 60 Hz			
Open			
at 40 °C	I _{th} =I _e	Α	850
at 50 °C	I _{th} =I _e	A	760
at 55 °C		A	725
	I _{th} =I _e		
at 60 °C	I _{th} =I _e	A	695
enclosed	I _{th}	Α	600
Conventional free air thermal current, 1 pole			
Note			at maximum permissible ambient air temperature
open	I _{th}	Α	1738
Current heat loss 3 pole, at l _{th} (60°)		W	37.3
Current heat loss at I _e to AC-3/400 V		W	0.026
Magnet systems Voltage tolerance			
Us			48 - 110 V 40-60 Hz
			48 - 110 V DC
AC operated	Pick-up		0.7 x U _{S min} - 1.15 x U _{S max}
DC operated	Pick-up		0.7 x U _{S min} - 1.15 x U _{S max}
AC operated	Drop-out		0.2 x U _{S max} - 0.6 x U _{S min}
DC operated	Drop-out		0.2 x U _{S max} - 0.6 x U _{S min}
Power consumption of the coil in a cold state and 1.0 x U _S			
Note on power consumption			Control transformer with u _k ≤ 7%
Pull-in power	Pick-up	VA	450
Pull-in power	Pick-up	W	350
Sealing power	Sealing	VA	4.3
Sealing power	Sealing	W	3.3
Duty factor		% DF	100
Changeover time at 100 % U _S (recommended value)			
Main contacts			
Closing delay		ms	60
Opening delay		ms	50
Behaviour in marginal and transitional conditions			
Sealing			
Voltage interruptions			
(0 0.2 x U _{c min}) ≦ 10 ms			Time is bridged specifically
(0 0.2 x U _{c min}) > 10 ms			Contactor drop-out
Voltage drops			
(0.2 0.6 x U _{c min}) ≤ 12 ms			Time is bridged specifically
(0.2 0.6 x U _{c min}) > 12 ms			Contactor drop-out
(0.6 0.7 x U _{c min})			Contactor remains switched on
Excess voltage			
(1.15 1.3 x U _{c max})			Contactor remains switched on
			Socialist formation officered off
Pick-up phase (0 0.7 x U _{c min})			Contactor does not switch on
(0.7 x U _{c min} 1.15 x U _{c max})			Contactor switches on properly
Admissible transitional contact resistance (of the external control circuit device when actuating A11)		mΩ	≦ 500
PLC signal level (A3 - A4) to IEC/EN 61131-2 (type 2)			
High		٧	15

Low	V	5			
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					
Pilot Duty					
AC operated		A600			
DC operated		P300			
General Use					
AC	V	600			
AC	А	6			
DC	V	250			
DC	А	1			
Special Purpose Ratings					
Resistance Air Heating					
480V 60Hz 3phase, 277V 60Hz 1phase	Α	700			
600V 60Hz 3phase, 347V 60Hz 1phase	А	700			

Design verification as per IEC/EN 61439

2001gii 1011110441011 40 por 120, 211 01 100			
Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	650
Equipment heat dissipation, current-dependent	P _{vid}	W	0
Static heat dissipation, non-current-dependent	P _{vs}	W	6.3
Heat dissipation capacity	P _{diss}	W	0
Operating ambient temperature min.		°C	-40
Operating ambient temperature max.		°C	70
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 b observed.
10.12 Electromagnetic compatibility			Is the panel builder's responsibility. The specifications for the switchgear must b observed.
10.13 Mechanical function			The device meets the requirements, provided the information in the instruction leaflet (IL) is observed.

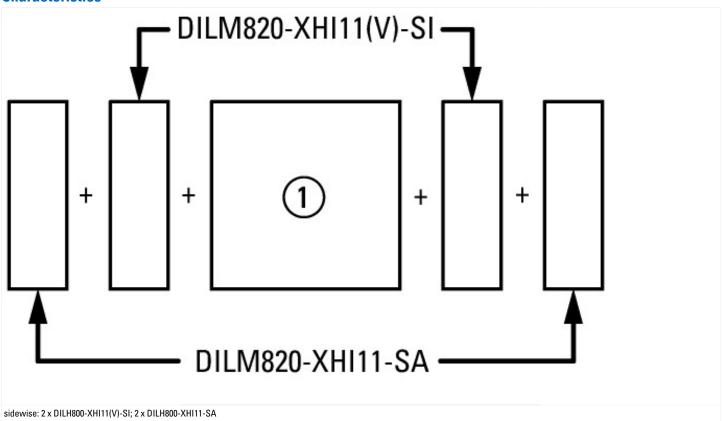
Technical data ETIM 8.0

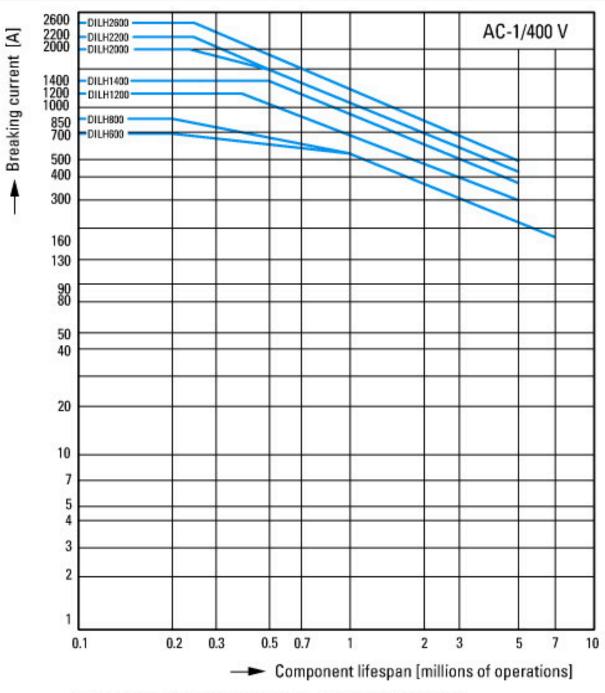
iccimical data ETIM 0.0				
Low-voltage industrial components (EG000017) / Power contactor, AC switching (EC000066)				
Electric engineering, automation, process control engineering / Low-voltage switch technology / Contactor (LV) / Power contactor, AC switching (ecl@ss10.0.1-27-37-10-03 [AAB718015])				
Rated control supply voltage Us at AC 50HZ		V	48 - 110	
Rated control supply voltage Us at AC 60HZ		V	48 - 110	
Rated control supply voltage Us at DC		V	48 - 154	
Voltage type for actuating			AC/DC	
Rated operation current le at AC-1, 400 V		Α	850	
Rated operation current le at AC-3, 400 V		Α	0	
Rated operation power at AC-3, 400 V		kW	0	
Rated operation current le at AC-4, 400 V		Α	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			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

IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; CE marking
E29096
NLDX
012528
3211-04
UL listed, CSA certified
No

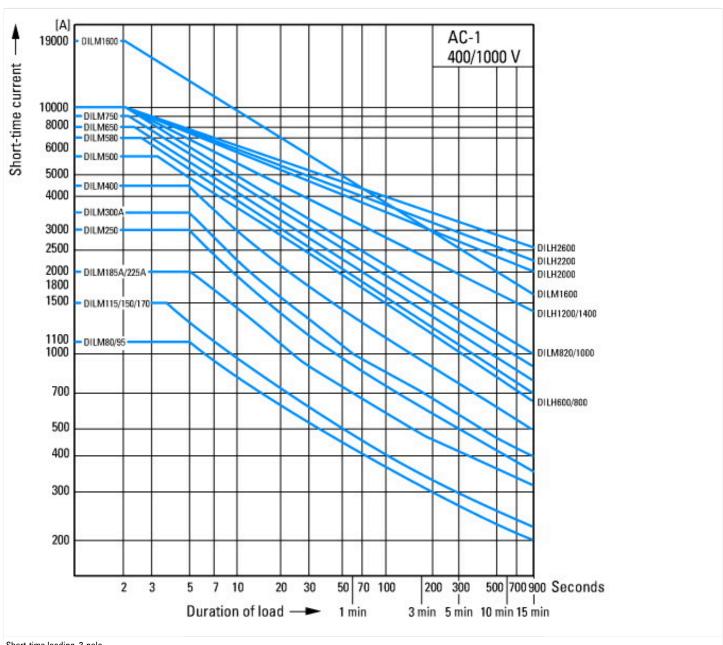
Characteristics





Component lifespan DILH1200 - DILH2600 ≦ 1000 V

Electrical lifespan AC-1



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

Dimensions

