

Switch-disconnector, 4 p, 160A, frame size 1

Part no. **LN1-4-160-I**
 Catalog No. **112001**



Powering Business Worldwide™

Delivery program

Product range	Switch-disconnectors		
Protective function	Disconnectors/main switches		
Standard/Approval	IEC		
Installation type	Fixed		
Construction size	LN1		
Description	Main switch characteristics including positive drive to IEC/EN 60204 and VDE 0113. Isolating characteristics to IEC/EN 60947-3 and VDE 0660. Busbar tag shroud to VDE 0160 Part 100.		
Number of poles	4 pole		
Standard equipment	Box terminal		
Switch positions	I, +, 0		
Rated current = rated uninterrupted current	I _n = I _u	A	160
Short-circuit protection max. fuse gL-characteristic		A gL	160

Technical data

Switch-disconnectors

Rated surge voltage invariability	U _{imp}		
Main contacts		V	6000
Auxiliary contacts		V	6000
Rated operational voltage	U _e	V AC	690
Rated operating frequency	f	Hz	50/60
Rated current = rated uninterrupted current	I _n = I _u	A	160
Oversupply category/pollution degree			III/3
Rated insulation voltage	U _i	V	690
Use in unearthed supply systems		V	≤ 690

Rated short-circuit making capacity

690 V 50/60 Hz	I _c	kA	2.8
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Rated short-time withstand current

t = 0.3 s	I _{cw}	kA	2
t = 1 s	I _{cw}	kA	2

Rated conditional short-circuit current

With back-up fuse		A gG/gL	PN1(N1)-63...125: 125 PN1(N1)-160: 160
400 ... 415 V		kA	100
690 V		kA	80
With downstream fuse		A gG/gL	PN1(N1)-63...125: 125 PN1(N1)-160: 160
400 ... 415 V		kA	100
690 V		kA	10

Rated making and breaking capacity

Rated operational current	I _e	A	
415 V	I _e	A	160
690 V	I _e	A	160
415 V	I _e	A	160
690 V	I _e	A	160
Lifespan, mechanical	Operations		20000
Max. operating frequency		Ops/h	120

Lifespan, electrical

400 V 50/60 Hz	Operations		10000
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415 V 50/60 Hz	Operations	10000
690 V 50/60 Hz	Operations	7500
400 V 50/60 Hz	Operations	7500
415 V 50/60 Hz	Operations	7500
690 V 50/60 Hz	Operations	5000
Total break time at short-circuit	ms	< 10

Terminal capacity

Standard equipment		Box terminal	
Round copper conductor			
Box terminal			
Solid	mm ²	1 x (10 - 16) 2 x (6 - 16)	
Stranded	mm ²	1 x (25 - 70) Up to 95 mm ² can be connected depending on the cable manufacturer. 2 x 25	
Tunnel terminal			
Solid	mm ²	1 x 16	
Stranded	mm ²		
Stranded	mm ²	1 x (25 - 95)	
Bolt terminal and rear-side connection			
Direct on the switch			
Solid	mm ²	1 x (10 - 16) 2 x (6 - 16)	
Stranded	mm ²	1 x (25 - 70) 2 x 25	
AI conductors, Cu cable			
Tunnel terminal			
Solid	mm ²	1 x 16	
Stranded	mm ²		
Stranded	mm ²	1 x (25 - 95)	
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	2 x 9 x 0.8
	max.	mm	9 x 9 x 0.8
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection		M6	
Direct on the switch			
	min.	mm	12 x 5
	max.	mm	16 x 5
Control cables			
	mm ²	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)	

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	I _n	A	160
Equipment heat dissipation, current-dependent	P _{vid}	W	29.184
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 6.0

Low-voltage industrial components (EG000017) / Switch disconnector (EC000216)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Off-load switch, circuit breaker, control switch / Switch disconnector (ecl@ss8.1-27-37-14-03 [AKF060010])

Version as main switch	Yes
Version as maintenance-/service switch	Yes
Version as safety switch	No
Version as emergency stop installation	Yes
Version as reversing switch	No
Max. rated operation voltage Ue AC	V 400
Rated operating voltage	V 690 - 690
Rated permanent current Iu	A 160
Rated permanent current at AC-21, 400 V	A 0
Rated operation power at AC-3, 400 V	kW 0
Rated short-time withstand current Icw	kA 2
Rated operation power at AC-23, 400 V	kW 90
Switching power at 400 V	kW 0
Conditioned rated short-circuit current Iq	kA 100
Number of poles	4
Number of auxiliary contacts as normally closed contact	0
Number of auxiliary contacts as normally open contact	0
Number of auxiliary contacts as change-over contact	0
Motor drive optional	Yes
Motor drive integrated	No
Voltage release optional	Yes
Device construction	Built-in device fixed built-in technique
Suitable for ground mounting	Yes
Suitable for front mounting 4-hole	No
Suitable for front mounting center	No
Suitable for distribution board installation	Yes
Suitable for intermediate mounting	Yes
Colour control element	Grey
Type of control element	Rocker lever
Interlockable	Yes
Type of electrical connection of main circuit	Frame clamp
Degree of protection (IP), front side	IP20

