## **DATASHEET - LN2-250-I**



## Switch-disconnector, 3 p, 250A, frame size 2

Part no. LN2-250-I Catalog No. 112004



# **Delivery program**

Product range			Switch-disconnectors
Protective function			Disconnectors/main switches
Standard/Approval			IEC
Installation type			Fixed
Construction size			LN2
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			3 pole
Standard equipment			Screw connection
Switch positions			I, +, 0
Rated current = rated uninterrupted current	$I_n = I_u$	Α	250
Short-circuit protection max. fuse gL-characteristic		A gL	250

## **Technical data**

#### **Switch-disconnectors**

Rated surge voltage invariability

Main contacts		V	8000		
Auxiliary contacts		V	6000		
Rated operational voltage	Ue	V AC	690		
Rated operating frequency	f	Hz	50/60		
Rated current = rated uninterrupted current	$\boldsymbol{I}_n = \boldsymbol{I}_u$	Α	250		
Overvoltage category/pollution degree			III/3		
Rated insulation voltage	Ui	V	690		
Use in unearthed supply systems		V	≦ 690		
Rated short-circuit making capacity					
690 V 50/60 H	Ic	kA	5.5		
Rated short-time withstand current					
t = 0.3 s	I <sub>cw</sub>	kA	3.5		
t = 1 s	I <sub>cw</sub>	kA	3.5		
Rated conditional short-circuit current					
With back-up fuse		A gG/gL	PN2(N2)-160250: 250		
400 415 V		kA	100		
690 V		kA	80		

## 400 ... 415 V

Rated making and breaking capacity

With downstream fuse

690 V

Rated operational current	l <sub>e</sub>	Α	
415 V	l <sub>e</sub>	Α	250
690 V	I <sub>e</sub>	Α	250
415 V	I <sub>e</sub>	Α	250
690 V	I <sub>e</sub>	Α	250
Lifespan, mechanical	Operations		20000
Max. operating frequency		Ops/h	120
Lifespan, electrical			

kA

kA

A gG/gL PN2(N2)-160...250: 250

100

80

10000

400 V 50/60 Hz

09/09/2021

Operations

COO V E0/CO II-	0		7500
690 V 50/60 Hz	Operations		7500
400 V 50/60 Hz	Operations		7500 7500
415 V 50/60 Hz	Operations		
690 V 50/60 Hz	Operations		5000
Total break time at short-circuit  Terminal capacity		ms	< 10
Standard equipment			Screw connection
Round copper conductor			
Box terminal			
Solid		mm <sup>2</sup>	1 x (4 - 16) 2 x (4 - 16)
Stranded		mm <sup>2</sup>	1 x (25 - 185) 2 x (25 - 70)
Tunnel terminal			
Solid		$\text{mm}^2$	1 x (16 - 185)
Stranded			
Stranded		mm <sup>2</sup>	1 x (25 - 185)
Bolt terminal and rear-side connection			
Direct on the switch			
Solid		mm <sup>2</sup>	1 x (4 - 16) 2 x (4 - 16)
Stranded		mm <sup>2</sup>	1 x (25 - 185) 2 x (25 - 70)
Al conductors, Cu cable			
Tunnel terminal			
Solid		$\mathrm{mm}^2$	1 x 16
Stranded			
Stranded		$\text{mm}^2$	1 x (25 - 185)
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	2 x 16 x 0.8
Flat copper strip, with holes	max.	mm	10 x 16 x 0.8
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	2 x 9 x 0.8
	max.	mm	10 x 16 x 0.8
Bolt terminal and rear-side connection			
Flat copper strip, with holes	min.	mm	2 x 16 x 0.8
Flat copper strip, with holes	max.	mm	10 x 16 x 0.8
Copper busbar (width x thickness)	mm		
Bolt terminal and rear-side connection			
Screw connection			M8
Direct on the switch			
	min.	mm	16 x 5
	max.	mm	20 x 5
Control cables			
		mm <sup>2</sup>	1 x (0.75 - 2.5) 2 x (0.75 - 1.5)

10000

Operations

# Design verification as per IEC/EN 61439

415 V 50/60 Hz

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	250
Equipment heat dissipation, current-dependent	P <sub>vid</sub>	W	48
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 7.0**

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@ss10.0.1-27-37-14-03 [AKF060013])

Version as maintenance-/service switch         1	[AKFU6UU13])		
Version as safety switch         Yes           Version as emergency stop installation         Yes           Version as reversing switch         Yes           Number of switches         Yes           Max. rated operation voltage Ue AC         Yes           Rated operation voltage         Yes           Rated operation voltage         Ae           Rated permanent current at AC-23, 400 V         Ae           Rated permanent current at AC-21, 400 V         Ae           Rated operation power at AC-3, 400 V         Ae           Rated operation power at AC-23, 400 V         Ae           Rated operation power at AC-23, 400 V         Ae           Rated operation power at AC-23, 400 V         Ae           Switching power at 400 V         Ae           Number of auxiliary contacts as normally closed contact         Ae           Number of auxiliary contacts as normally closed contact         Ae           Number of auxiliary contacts as normally open contact         Ae           Motor drive optional         Ae           Motor drive integrated         Ae           Valtage release optional         Belief d	Version as main switch		Yes
Version as emergency stop installation         ***         Yes           Version as reversing switch         ****         ***           Number of switches         V         400           Max. rated operation voltage UeAC         V         900-890           Rated operation voltage UeAC         A         900-890           Rated permanent current turent at AC-23, 400 V         A         20           Rated permanent current at AC-23, 400 V         A         9           Rated operation power at AC-3, 400 V         K         30           Rated operation power at AC-23, 400 V         KW         9           Rated operation power at AC-23, 400 V         KW         30           Rated operation power at AC-23, 400 V         KW         30           Switching power at 400 V         KW         30           Conditioned rated short-ciric current lq         KW         30           Number of ouxiliary contacts as normally closed contact         KW         30           Number of ouxiliary contacts as normally open contact         KW         90           Motor drive optional         KW         90           Motor drive integrated         KW         90           Voltage release optional         KW         90           Motor drive int	Version as maintenance-/service switch		Yes
Version as reversing switch  Number of switches  Max. rated operation voltage Ue AC  Mat. rated operation voltage Ue AC  Rated operating voltage  Rated operating voltage  Rated operating voltage  Rated permanent current u  Rated permanent current at AC-23, 400 V  Rated permanent current at AC-23, 400 V  Rated permanent current at AC-21, 400 V  Rated short-time withstand current low  Rated operation power at AC-3, 400 V  Rated short-direw withstand current low  Rated operation power at AC-23, 400 V  Routed operation p	Version as safety switch		No
Number of switches         W         40           Max. rated operation voltage Ue AC         V         400           Rated operating voltage         V         890-890           Rated permanent current Iu         A         250           Rated permanent current at AC-23, 400 V         A         0           Rated operation power at AC-3, 400 V         KW         0           Rated operation power at AC-23, 400 V         KW         35           Rated operation power at AC-23, 400 V         KW         122           Switching power at 400 V         KW         0           Conditioned rated short-circuit current Iq         KW         0           Number of poles         KW         10           Number of auxiliary contacts as normally closed contact         KW         0           Number of auxiliary contacts as change-over contact         KW         0           Motor drive optional         KW         KW           O'tage release optional         KW         No           Device	Version as emergency stop installation		Yes
Max. rated operation voltage Ue AC         V         400           Rated operating voltage         V         600 - 600           Rated permanent current lu         A         250           Rated permanent current at AC-23, 400 V         A         0           Rated operation power at AC-3, 400 V         A         0           Rated short-time withstand current low         A         35           Rated operation power at AC-23, 400 V         KW         132           Switching power at 400 V         KW         100           Conditioned rated short-circuit current lq         KW         100           Number of poles         A         3           Number of auxiliary contacts as normally closed contact         B         4         0           Number of auxiliary contacts as change-over contact         B         6         0         0           Motor drive integrated         B         7         Yes         0         0           Voltage release optional         B         6         0	Version as reversing switch		No
Rated operating voltage         V         690 - 690           Rated opermanent current tu         A         250           Rated permanent current at AC-23, 400 V         A         0           Rated operation power at AC-3, 400 V         KW         0           Rated operation power at AC-23, 400 V         KW         3.5           Rated operation power at AC-23, 400 V         KW         132           Switching power at 400 V         KW         100           Conditioned rated short-circuit current lq         KW         100           Number of poles         KA         100           Number of auxiliary contacts as normally closed contact         Y         100           Number of auxiliary contacts as change-over contact         Y         100           Motor drive optional         Y         Y         100           Motor drive integrated         Y         Y         100           Voltage release optional         Y         Y         100           Device construction         Y         Y         100           Suitable for ground mounting         Y         Y         100           Suitable for front mounting 4-hole         Y         Y         100           Suitable for front mounting centre         Y	Number of switches		
Rated permanent current lu Rated permanent current at AC-23, 400 V Rated permanent current at AC-21, 400 V Rated operation power at AC-3, 400 V Rated operation power at AC-3, 400 V Rated short-time withstand current lcw Rated operation power at AC-23, 400 V Rated short-time withstand current lcw Rated operation power at AC-23, 400 V Rated short-time withstand current lcw Rated operation power at AC-23, 400 V	Max. rated operation voltage Ue AC	V	400
Rated permanent current at AC-23, 400 V         A         C           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 lcw         kA         3.5           Rated operation power at AC-23, 400 V         kW         132           Switching power at 400 V         kW         0           Conditioned rated short-circuit current lq         kA         100           Number of poles         3         3           Number of auxiliary contacts as normally closed contact         9         2           Number of auxiliary contacts as change-over contact         9         2           Motor drive optional         9         2           Motor drive integrated         9         2           Motor drive integrated         9         9           Voltage release optional         9         9           Device construction         9         9           Suitable for ground mounting         9         9           Suitable for front mounting 4-hole         9         9           Suitable for front mounting 4-hole         9         9           Suitable for front mounting centre         9         9     <	Rated operating voltage	V	690 - 690
Rated permanent current at AC-21, 400 V Rated operation power at AC-3, 400 V Rated short-time withstand current lcw Rated short-time withstand current lcw Rated operation power at AC-23, 400 V Rated operation power at AC-23, 400 V Roditioned rated short-circuit current Iq Roditione	Rated permanent current lu	Α	250
Rated operation power at AC-3, 400 V Rated short-time withstand current Icw Rated short-time withstand current Icw Rated short-time withstand current Icw Rated operation power at AC-23, 400 V Rowtiching power at 400 V Conditioned rated short-circuit current Iq Rowtiching power at 400 V Conditioned rated short-circuit current Iq Rowtiching power at 400 V	Rated permanent current at AC-23, 400 V	Α	
Rated short-time withstand current Icw Rated operation power at AC-23, 400 V  Switching power at 400 V  Conditioned rated short-circuit current Iq  Number of poles  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Motor drive optional  Motor drive optional  Motor drive integrated  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting eentre  Suitable for front mounting centre	Rated permanent current at AC-21, 400 V	Α	0
Rated operation power at AC-23, 400 V  Switching power at 400 V  Conditioned rated short-circuit current Iq  Number of poles  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Notor drive optional  Motor drive integrated  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  No  No  No  No  No  No  No  No  No  N	Rated operation power at AC-3, 400 V	kW	0
Switching power at 400 V Conditioned rated short-circuit current Iq Number of poles Number of auxiliary contacts as normally closed contact Number of auxiliary contacts as normally open contact Number of auxiliary contacts as change-over contact Notor drive optional Notor drive integrated No Voltage release optional Ves Device construction Suitable for ground mounting Suitable for front mounting 4-hole Suitable for front mounting centre No No	Rated short-time withstand current lcw	kA	3.5
Conditioned rated short-circuit current Iq  Number of poles  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  Motor drive optional  Motor drive integrated  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  No  No  No  No  No  No  No  No  No  N	Rated operation power at AC-23, 400 V	kW	132
Number of poles  Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Notor drive optional  Notor drive integrated  No  Voltage release optional  Pes  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  No  No	Switching power at 400 V	kW	0
Number of auxiliary contacts as normally closed contact  Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Number of auxiliary contacts as change-over contact  Notor drive optional  Motor drive integrated  No  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  No  No  Suitable for front mounting centre  No  No  No  No  No  No  No  No  No  N	Conditioned rated short-circuit current Iq	kA	100
Number of auxiliary contacts as normally open contact  Number of auxiliary contacts as change-over contact  Motor drive optional  Motor drive integrated  No  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  O  O  O  O  O  O  O  O  O  O  O  O  O	Number of poles		3
Number of auxiliary contacts as change-over contact  Motor drive optional  Motor drive integrated  Ves  Motor drive integrated  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  No  Suitable for front mounting centre  No	Number of auxiliary contacts as normally closed contact		0
Motor drive optional  Motor drive integrated  No  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  No  Suitable for front mounting centre  No	Number of auxiliary contacts as normally open contact		0
Motor drive integrated  Voltage release optional  Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  No  No  No	Number of auxiliary contacts as change-over contact		0
Voltage release optional  Perice construction  Built-in device fixed built-in technique  Suitable for ground mounting  Yes  Suitable for front mounting 4-hole  Suitable for front mounting centre  No	Motor drive optional		Yes
Device construction  Suitable for ground mounting  Suitable for front mounting 4-hole  Suitable for front mounting centre  Built-in device fixed built-in technique  Yes  No  No	Motor drive integrated		No
Suitable for ground mounting Yes Suitable for front mounting 4-hole No Suitable for front mounting centre No	Voltage release optional		Yes
Suitable for front mounting 4-hole No Suitable for front mounting centre No	Device construction		Built-in device fixed built-in technique
Suitable for front mounting centre No	Suitable for ground mounting		Yes
·	Suitable for front mounting 4-hole		No
Suitable for distribution board installation  Yes	Suitable for front mounting centre		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	Screw connection
Degree of protection (IP), front side	IP20
Degree of protection (NEMA)	

## **Dimensions**



