DATASHEET - N1-63



Switch-disconnector 3p 63A BG1

Part no. N1-63 Catalog No. 259143

EL-Nummer (Norway) 4358715



Delivery program

71 0			
Product range			Switch-disconnectors
Protective function			Disconnectors/main switches
Standard/Approval			IEC
Installation type			Fixed
Construction size			N1
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			Box terminal
Switch positions			I, +, 0
Rated current = rated uninterrupted current	$I_n = I_u$	Α	63
Short-circuit protection max. fuse gL-characteristic		A gL	125

Technical data

General

General			
Standards			IEC/EN 60947
Protection against direct contact			Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature			
Ambient temperature, storage		°C	- 40 - + 70
Operation		°C	-25 - +70
Mechanical shock resistance (10 ms half-sinusoidal shock) according to IEC 60068-2-27		g	20 (half-sinusoidal shock 20 ms)
Safe isolation to EN 61140			
Between auxiliary contacts and main contacts		V AC	500
between the auxiliary contacts		V AC	300
Mounting position			
Mounting position			Vertical and 90° in all directions With residual-current release XFI: - NZM1, N1, NZM2, N2: vertical and 90° in all directions with plug-in adapter elements - NZM1, N1, NZM2, N2: vertical, 90° right/left with withdrawable unit: - NZM3, N3: vertical, 90 ° left - NZM4, N4: vertical with remote operator: - NZM2, N(S)2, NZM3, N(S)3, NZM4, N(S)4: vertical and 90° in all directions
Direction of incoming supply			as required
Degree of protection			
Device			In the area of the HMI devices: IP20 (basic protection type)
Enclosures			With insulating surround: IP40 With door coupling rotary handle: IP66
Terminations			Tunnel terminal: IP10 Phase isolator and band terminal: IP00
Switch-disconnectors			
Rated surge voltage invariability	U_{imp}		

Main contacts

6000

Auxiliary contacts		V	6000
Rated operational voltage	Ue	V AC	690
Rated operating frequency	f	Hz	50/60
Rated current = rated uninterrupted current	$I_n = I_u$	Α	63
Overvoltage category/pollution degree			111/3
Rated insulation voltage	Ui	V	690
Use in unearthed supply systems		V	≦ 690
Other technical data (sheet catalogue)			Weight Temperature dependency, Derating Effective power loss
Rated short-circuit making capacity			
690 V 50/60 H	Ic	kA	2.8
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			gG/gL: 63
400 415 V		kA	100
690 V		kA	80
With downstream fuse			gG/gL: 63
400 415 V		kA	100
690 V		kA	10
Rated making and breaking capacity Rated operational current	l _e	Α	
AC-22/23A	'e	^	
415 V		Α	160
	l _e		
690 V	l _e	Α	160
Lifespan, mechanical	Operations		20000
Max. operating frequency Lifespan, electrical		Ops/h	120
AC-1			
400 V 50/60 Hz	Operations		10000
415 V 50/60 Hz	Operations		10000
690 V 50/60 Hz	Operations		7500
AC-23A			
400 V 50/60 Hz	Operations		1000
415 V 50/60 Hz	Operations		1000
690 V 50/60 Hz	Operations		1000
Terminal capacity			
Standard equipment			Box terminal
Optional accessories			Screw connection Tunnel terminal connection on rear
Copper conductors and cables			
Box terminal			
Solid		mm ²	1 x (10 - 16) 2 x (6 - 16)
Stranded		mm ²	1 x (10 - 70) ³⁾ 2 x (6 - 25)
			$^{\rm 3)}$ Up to 95 $\rm mm^2$ can be connected depending on the cable manufacturer.
Tunnel terminal			
Solid		mm ²	1 x 16
Stranded			
1-hole		mm ²	1 x (25 - 95)
Bolt terminal and rear-side connection			
Direct on the switch			
= 3.000 on 210 on 210			1 x (10 - 16)
Solid		mm ²	

Stranded		mm ²	1 x (25 - 70) ³⁾ 2 x 25
			$^{\rm 3)}$ Up to 95 $\rm mm^2$ can be connected depending on the cable manufacturer.
Al conductors, Al cable			
Tunnel terminal			
Solid		mm^2	1 x 16
Stranded			
1-hole		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 (10 - 16)
Stranded		mm ²	1 x (25 - 70) ³⁾ 2 x 25
Cu strip (number of segments x width x segment thickness)			
Box terminal			
	min.	mm	2 x 9 x 0.8
	max.	mm	9×9×0.8
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

Design verification as per IEC/EN 61439

Technical data for design verification			
Rated operational current for specified heat dissipation	In	Α	63
Equipment heat dissipation, current-dependent	P_{vid}	W	4.52
Operating ambient temperature min.		°C	-25
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 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.

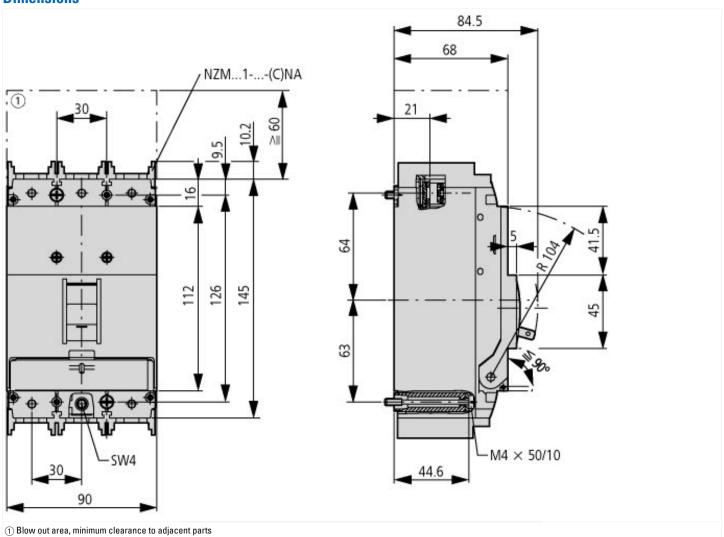
Technical data ETIM 7.0

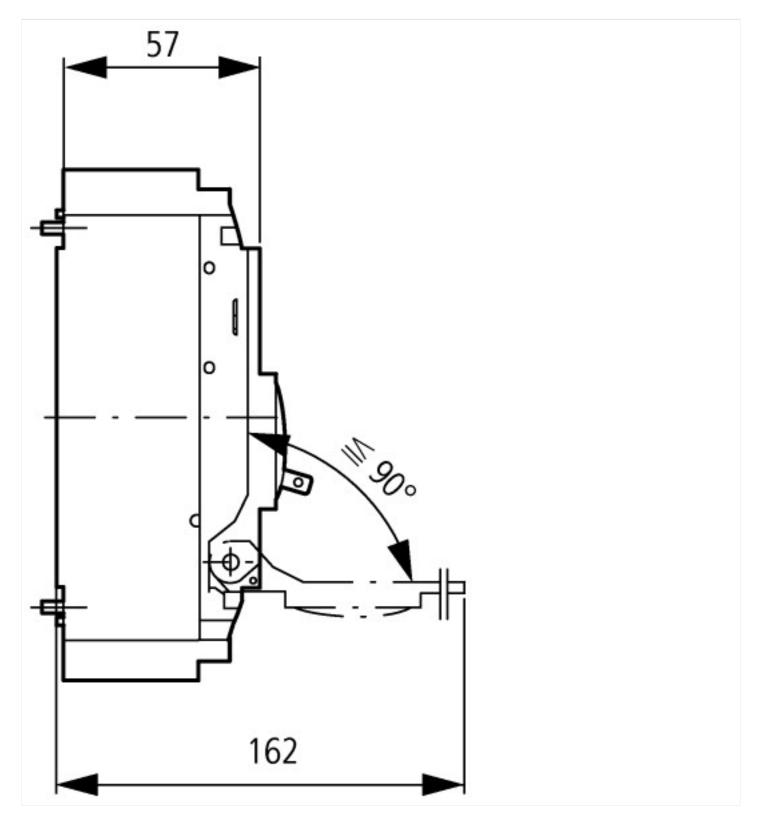
Low-voltage industrial components (EG000017) / Switch disconnector (EC000216)

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 main extended 4 Yes Version as sethic switch 6 Yes Version as sethic switch 7 Yes Version as sethic systems 7 Yes Version as sethic systems 7 Yes Version as sethic systems 7 Yes Number of switches 9 Yes Mix. roted operation voltage Us AC 9 Yes Retail operation systems 4 Qe Retail operation voltage Us AC 4 Qe Retail operation young and AC-23, 400 V 4 Qe Retail operation power at AC-23, 400 V 4 Qe Retail operation power at AC-23, 400 V 6 Qe Retail operation power at AC-23, 400 V 6 Qe Retail operation power at AC-23, 400 V 6 Qe Retail operation power at AC-23, 400 V 7 Qe Number of awaising yontacts as normally closed contact 9 Qe Number of awaising yontacts as normally open contact 9 Qe Number of awaising yont	[AKF060013])	377		.,,
Version as safety switch No Version as emergency stop installation Yes Vorsion as reversing switch No Number of switches 1 Max. rated operation voltage Ue AC V Rated operation voltage Ue AC V Rated operation voltage Ue AC A Rated operation voltage Ue AC A Rated permanent current and AC-22, 400 V A Rated permanent current and AC-23, 400 V A Rated short-sime withstand current lew KW Rated short-sime withstand current lew KW Rated operation power at AC-23, 400 V KW Switching power at 400 V KW Conditioned rated short-circuit current lew KW Number of poles KW Number of poles KW Number of auxiliary cortacts as normally open contact KW Number of auxiliary cortacts as change-over contact KW Mottor drive prince integrated KW	Version as main switch			Yes
Version as omergency stop installation Yes No. Version as oneversing switch 1 No. Number of switches Yes 36 Name of switches Yes 36 Rated operating voltage Yes 36 Rated permanent current un A 32 Rated permanent current at AC-23,400 Y A 0 Rated operation power at AC-3,400 Y Wes 0 Conditioned rated short-circuit current q Yes 0 Rated operation power at AC-3,400 Y Wes 0 Number of joiles Yes 0 Number of auxiliary contacts as normally closed contact Yes 0 Number of auxiliary contacts as normally closed contact Yes Yes Number of auxiliary contacts as change-ver contact Yes Yes Notation of we integrated Yes Yes Notation of we integrated	Version as maintenance-/service switch			Yes
Version as reversing switch Image: Provision of switches	Version as safety switch			No
Number of switches 1 1 Max. rated operation voltage Ue AC V 990-990 Rated operation voltage Ue AC V 901-990 Rated permanent current ual AC-23, 400 V A 3 Rated permanent current at AC-23, 400 V A 0 Rated operation power at AC-34, 400 V K 0 Rated operation power at AC-23, 400 V K 0 Rated operation power at AC-24, 400 V K 0 Rated operation power at AC-24, 400 V K 0 Switching power at 400 V K 0 Conditioned rated short-circuit current Iq K 0 Number of poise K 0 Number of poise K 0 Number of auxiliary contacts as normally closed contact K 0 Number of auxiliary contacts as change-over contact K 0 Motor drive optional K 0 Motor drive integrated K 0 Voltage release optional K 0 Suitable for fort mounting 4-belo K 0 <td>Version as emergency stop installation</td> <td></td> <td></td> <td>Yes</td>	Version as emergency stop installation			Yes
Max. rated operation voltage Ue AC V 690 Rated operating voltage V 690 - 690 Rated operating voltage A 63 Rated permanent current ue C A 6 Rated permanent current at AC-21, 400 V A 0 Rated operation power at AC-3, 400 V W 0 Rated operation power at AC-3, 400 V W 2 Rated short-time withstand current Low W 3 Rated short-time withstand current Low W W 0 Switching power at MO2 V W 0 0 Number of auxiliary contacts as normally closed contact W 0 0 Number of auxiliary contacts as change-over contact W 0 0 Motor drive integrated W Y Y <td>Version as reversing switch</td> <td></td> <td></td> <td>No</td>	Version as reversing switch			No
Rated operating voltage V 690-690 Rated permanent current IU A 63 Rated permanent current at AC-23,400 V A 0 Rated spermanent current at AC-24,400 V A 2 Rated spermanent current at AC-24,400 V A 2 Rated spermanent current at AC-23,400 V A 2 Rated operation power at AC-23,400 V A 2 Rated spermanent at word at AC-24,400 V A 2 Rated operation power at AC-23,400 V A 2 Rated spermanent current at AC-24,400 V A 3 Walk and AC-24,400 V 4 2 Number of pusiting contacts as change-over contact C C Motor dr	Number of switches			1
Rated permanent current lu A 63 Rated permanent current at AC-23, 400 V A 0 Rated permanent current at AC-24, 400 V A 0 Rated permanent current at AC-24, 400 V A 0 Rated permanent current at AC-24, 400 V A 0 Rated short-time withstand current lcw A 2 Rated operation power at AC-23, 400 V AW 30 Switching power at 400 V KW 0 Conditioned rated short-circuit current lq KA 0 Number of poles S 3 Number of auxiliary contacts as normally closed contact C 0 Number of auxiliary contacts as normally open contact C 0 Number of auxiliary contacts as change-over contact C 0 Motor drive optional C 0 Motor drive integrated C No Voltage relasse optional C Suitable for pround mounting Suitable for ground mounting C Bull-in device fixed built-in technique Suitable for front mounting centre No No </td <td>Max. rated operation voltage Ue AC</td> <td></td> <td>V</td> <td>690</td>	Max. rated operation voltage Ue AC		V	690
Rated permanent current at AC-21, 400 V A 0 Rated permanent current at AC-21, 400 V A 0 Rated operation power at AC-3, 400 V AM 0 Rated short-line withstand current low AM 2 Rated peration power at AC-23, 400 V AM 0 Switching power at 400 V AM 0 Conditioned rated short-circuit current Iq AM 0 Number of polos B 3 3 Number of auxiliary contacts as normally closed contact B 0 0 Number of auxiliary contacts as normally open contact B 0 0 Number of auxiliary contacts as schange-over contact B 0 0 Motor drive optional B No No Motor drive integrated B Yes No Valtage release optional B Yes No Suitable for ground mounting B Yes No Suitable for front mounting centre B Yes No Suitable for front mounting centre Yes No<	Rated operating voltage		V	690 - 690
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 low KA 2 Rated peration power at AC-23, 400 V KW 30 Switching power at 400 V KW 0 Conditioned rated short-circuit current Iq KA 0 Number of bles 3 3 Number of auxiliary contacts as normally closed contact C 0 Number of auxiliary contacts as normally open contact C 0 Motor drive optional C No Motor drive integrated C No Voltage release optional C No Device construction C No Suitable for ground mounting C No Suitable for front mounting 4-hole C No Suitable for front mounting centre No No Suitable for intermediate mounting C Yes Suitable for intermediate mounting E Yes Suitable for intermediate mounting E <t< td=""><td>Rated permanent current lu</td><td></td><td>Α</td><td>63</td></t<>	Rated permanent current lu		Α	63
Rated operation power at AC-3, 400 V kW 2 Rated short-time withstand current low kA 2 Rated operation power at AC-23, 400 V kW 30 Switching power at 400 V kW 0 Conditioned rated short-circuit current lq kA 0 Number of poles C 3 3 Number of auxiliary contacts as normally closed contact C 0 Number of auxiliary contacts as normally open contact C 0 Number of auxiliary contacts as change-over contact C 0 Motor drive optional C 0 0 Motor drive optional C No 0 Motor drive integrated C No 0 Voltage release optional C No 0 Suitable for ground mounting C No 0 Suitable for front mounting 4-hole C No No Suitable for front mounting centre No No No Suitable for front mounting centre No No No	Rated permanent current at AC-23, 400 V		Α	0
Rated short-time withstand current low	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 lq Number of poles Number of poles Number of auxiliary contacts as normally closed contact Number of auxiliary contacts as normally closed contact Number of auxiliary contacts as normally open 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 Nord rirve optional Motor drive integrated Notode release optional Notode rive integrated Notode rive integrated Notode or front mounting Suitable for ground mounting Suitable for front mounting 4-hole Suitable for front mounting 4-hole Suitable for front mounting oente Suitable for intermediate mounting Suitable for intermediate mounting Colour control element Type of control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side	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 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 normally open contact Number of auxiliary cont	Rated short-time withstand current lcw		kA	2
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 No 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 4-hole Suitable for front mounting centre Suitable for distribution board installation Suitable for intermediate mounting Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side A A O O No No No No No Suitable for intermediate mounting Yes Suitable for intermediate mounting Yes Socker lever Type of electrical connection of main circuit Degree of protection (IP), front side IP20	Rated operation power at AC-23, 400 V		kW	30
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 Notor drive optional Notor drive integrated No No Voltage release optional Pevice construction Suitable for ground mounting Suitable for ground mounting Suitable for front mounting 4-hole Suitable for front mounting centre Suitable for front mounting centre Suitable for distribution board installation Suitable for intermediate mounting Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side 3 O O O O O O O O O O O O	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 Number of auxiliary contacts as change-over contact No No No No Notor drive integrated No Voltage release optional Device construction Suitable for ground mounting Suitable for front mounting 4-hole Suitable for front mounting oentre Suitable for firont mounting centre Suitable for distribution board installation Suitable for distribution board installation Suitable for intermediate mounting Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side O O O O O O O O O O O O O	Conditioned rated short-circuit current Iq		kA	0
Number of auxiliary contacts as normally open 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 Suitable for firont mounting centre Suitable for distribution board installation Suitable for intermediate mounting Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side	Number of poles			3
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 Suitable for front mounting centre Suitable for intermediate mounting Suitable for intermediate mounting Colour control element Type of control element Type of electrical connection of main circuit Degree of protection (IP), front side No No O O Rocker lever Frame clamp Degree of protection (IP), front side	Number of auxiliary contacts as normally closed contact			0
Motor drive optional Motor drive integrated Voltage release optional Voltage release optional Vers Device construction Built-in device fixed built-in technique Vers Suitable for ground mounting Vers Suitable for front mounting 4-hole No Suitable for front mounting centre No Suitable for distribution board installation Vers Suitable for intermediate mounting Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side	Number of auxiliary contacts as normally open contact			0
Motor drive integratedNoVoltage release optionalYesDevice constructionBuilt-in device fixed built-in techniqueSuitable for ground mountingYesSuitable for front mounting 4-holeNoSuitable for front mounting centreNoSuitable for distribution board installationYesSutable for intermediate mountingYesColour control elementBlackType of control elementRocker leverInterlockableYesType of electrical connection of main circuitFrame clampDegree of protection (IP), front sideIP20	Number of auxiliary contacts as change-over contact			0
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 centre No Suitable for distribution board installation Yes Suitable for intermediate mounting Yes Colour control element Black Type of control element Rocker lever Interlockable Yes Type of electrical connection of main circuit Frame clamp Degree of protection (IP), front side IP20	Motor drive optional			No
Device construction Built-in device fixed built-in technique Yes Suitable for ground mounting Suitable for front mounting 4-hole No Suitable for front mounting centre Suitable for distribution board installation Yes Suitable for intermediate mounting Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side Built-in device fixed built-in technique Yes No No Rocker lever Black Rocker lever Frame clamp IP20	Motor drive integrated			No
Suitable for ground mounting Suitable for front mounting 4-hole No Suitable for front mounting centre No Suitable for distribution board installation Suitable for intermediate mounting Yes Colour control element Suitable for control element Rocker lever Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side Yes Interlockable IP20	Voltage release optional			Yes
Suitable for front mounting 4-hole No Suitable for front mounting centre No Suitable for distribution board installation Yes Suitable for intermediate mounting Yes Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side No No No Yes Yes Yes Yes Rocker lever Frame clamp IP20	Device construction			Built-in device fixed built-in technique
Suitable for front mounting centre No Suitable for distribution board installation Yes Suitable for intermediate mounting Yes Colour control element Type of control element Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side No Yes Rocker lever Yes Frame clamp IP20	Suitable for ground mounting			Yes
Suitable for distribution board installation Yes Suitable for intermediate mounting Yes Colour control element Black Type of control element Rocker lever Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side Yes IP20	Suitable for front mounting 4-hole			No
Suitable for intermediate mounting Yes Colour control element Type of control element Rocker lever Interlockable Type of electrical connection of main circuit Degree of protection (IP), front side Yes IP20	Suitable for front mounting centre			No
Colour control element Black Type of control element Rocker lever Interlockable Type of electrical connection of main circuit Frame clamp Degree of protection (IP), front side IP20	Suitable for distribution board installation			Yes
Type of control element Interlockable Type of electrical connection of main circuit Pegree of protection (IP), front side Rocker lever Yes It pegree of protection (IP), front side IP20	Suitable for intermediate mounting			Yes
Interlockable Yes Type of electrical connection of main circuit Frame clamp Degree of protection (IP), front side IP20	Colour control element			Black
Type of electrical connection of main circuit Degree of protection (IP), front side Frame clamp IP20	Type of control element			Rocker lever
Degree of protection (IP), front side	Interlockable			Yes
	Type of electrical connection of main circuit			Frame clamp
Degree of protection (NEMA)	Degree of protection (IP), front side			IP20
	Degree of protection (NEMA)			

Dimensions





Additional product information (links)

Weight	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.171
Temperature dependency, Derating	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.172
Effective power loss	http://ecat.moeller.net/flip-cat/?edition=HPLEN&startpage=17.174
CurveSelect characteristics program	http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/CharacteristicsProgram/index.htm
Eaton configurator	http://www.eaton.eu/DE/Europe/Electrical/CustomerSupport/ConfigurationTools/ConfiguratorCircuitBreaker/index.htm
additional technical information for NZM power switch	https://es-assets.eaton.com/DOCUMENTATION/PDF/nzm_technic_de_en.pdf