DATASHEET - LZMN2-A250-I



Circuit-breaker, 3 p, 250A

Part no. **LZMN2-A250-I**
174444

General specifications

Product name	Eaton Moeller series Power Defense molded case circuit-breaker
Part no.	LZMN2-A250-I
EAN	4015081709069
Product Length/Depth	149 millimetre
Product height	184 millimetre
Product width	105 millimetre
Product weight	2.359 kilogram
Compliances	RoHS conform
Certifications	IEC/EN 60947 VDE 0660 IEC
Product Tradename	Power Defense
Product Type	Molded case circuit breaker
Product Sub Type	None

Delivery program

Application	Use in unearthed supply systems at 690 V
Type	Circuit breaker
Circuit breaker frame type	LZM2
Number of poles	Three-pole
Amperage Rating	250 A
Release system	Thermomagnetic release
Features	Motor drive optional Protection unit
Special features	Rated current = rated uninterrupted current: 250 A Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit breaker (Rated short-circuit breaking capacity Icn)

Technical Data - Electrical

Voltage rating	690 V - 690 V
Voltage rating (DC)	750 V DC
Rated insulation voltage (Ui)	1000 V AC
Rated impulse withstand voltage (Uimp) at auxiliary contacts	6000 V
Rated impulse withstand voltage (Uimp) at main contacts	8000 V
Rated operational current	250 A (660-690 V AC-3, making and breaking capacity) 300 A (690 V AC-1, making and breaking capacity) 300 A (415 V AC-1, making and breaking capacity) 250 A (415 V AC-3, making and breaking capacity) 250 A (500 V DC-3, making and breaking capacity) 250 A (500 V DC-1, making and breaking capacity) 300 A (380/400 V AC-1, making and breaking capacity) 250 A (750 V DC-3, making and breaking capacity) 250 A (750 V DC-1, making and breaking capacity)
Rated short-time withstand current (t = 0.3 s)	1.9 kA
Rated short-time withstand current (t = 1 s)	1.9 kA
Instantaneous current setting (Ii) - min	1500 A
Instantaneous current setting (Ii) - max	2500 A
Overload current setting (Ir) - min	200 A
Overload current setting (Ir) - max	250 A
Short delay current setting (Isd) - min	0 A
Short delay current setting (Isd) - max	0 A
Short-circuit release non-delayed setting - min	1500 A
Short-circuit release non-delayed setting - max	2500 A
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 230 V, 50/60 Hz	85 kA

Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 400/415 V, 50/60 Hz	50 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 440 V, 50/60 Hz	35 kA
Rated short-circuit breaking capacity Ics (IEC/EN 60947) at 525 V, 50/60 Hz	25 kA
Rated short-circuit making capacity Icm at 240 V, 50/60 Hz	187 kA
Rated short-circuit making capacity Icm at 400/415 V, 50/60 Hz	105 kA
Rated short-circuit making capacity Icm at 440 V, 50/60 Hz	74 kA
Rated short-circuit making capacity Icm at 525 V, 50/60 Hz	53 kA
Rated short-circuit making capacity Icm at 690 V, 50/60 Hz	40 kA
Short-circuit total breaktime	< 10 ms
Electrical connection type of main circuit	Screw connection
Isolation	300 V AC (between the auxiliary contacts) 500 V AC (between auxiliary contacts and main contacts)
Number of operations per hour - max	120
Handle type	Rocker lever
Utilization category	A (IEC/EN 60947-2)
Overvoltage category	III
Pollution degree	3
Lifespan, electrical	7500 operations at 750 V DC-1 10000 operations at 400 V AC-1 7500 operations at 690 V AC-1 5000 operations at 690 V AC-3 7500 operations at 500 V DC-1 6500 operations at 400 V AC-3 3000 operations at 750 V DC-3 10000 operations at 415 V AC-1 3000 operations at 500 V DC-3 6500 operations at 415 V AC-3
Direction of incoming supply	As required

Technical Data - Mechanical

Mounting Method	Built-in device fixed built-in technique Fixed DIN rail (top hat rail) mounting optional
Degree of protection	IP20 In the area of the HMI devices: IP20 (basic protection type)
Degree of protection (IP), front side	IP66 (with door coupling rotary handle) IP40 (with insulating surround)
Degree of protection (terminations)	IP10 (tunnel terminal) IP00 (terminations, phase isolator and band terminal)
Protection against direct contact	Finger and back-of-hand proof to DIN EN 50274/VDE 0106 part 110
Shock resistance	20 g (half-sinusoidal shock 20 ms)
Number of auxiliary contacts (change-over contacts)	0
Number of auxiliary contacts (normally closed contacts)	0
Number of auxiliary contacts (normally open contacts)	0
Position of connection for main current circuit	Front side
Climatic proofing	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Special features	Rated current = rated uninterrupted current: 250 A Maximum back-up fuse, if the expected short-circuit currents at the installation location exceed the switching capacity of the circuit breaker (Rated short-circuit breaking capacity Icn)
Lifespan, mechanical	20000 operations

Technical Data - Mechanical - Terminals

Standard terminals	Screw terminal
Terminal capacity (control cable)	0.75 mm^2 - 2.5 mm^2 (1x) 0.75 mm^2 - 1.5 mm^2 (2x)
Terminal capacity (aluminum solid conductor/cable)	16 mm^2 (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)	25 mm^2 - 185 mm^2 (1x) at tunnel terminal
Terminal capacity (copper busbar)	M8 at rear-side screw connection Min. 16 mm x 5 mm direct at switch rear-side connection Max. 20 mm x 5 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)	4 mm^2 - 16 mm^2 (2x) at box terminal 4 mm^2 - 16 mm^2 (1x) direct at switch rear-side connection 4 mm^2 - 16 mm^2 (1x) at box terminal 16 mm^2 (1x) at tunnel terminal 4 mm^2 - 16 mm^2 (2x) direct at switch rear-side connection
Terminal capacity (copper stranded conductor/cable)	25 mm^2 - 70 mm^2 (2x) at box terminal

			25 mm² - 185 mm² (1x) at box terminal 25 mm² - 70 mm² (2x) direct at switch rear-side connection 25 mm² - 185 mm² (1x) at tunnel terminal 25 mm² - 185 mm² (1x) direct at switch rear-side connection
Terminal capacity (copper strip)			Min. 2 segments of 9 mm x 0.8 mm at box terminal Max. 10 segments of 16 mm x 0.8 mm at box terminal Min. 2 segements of 16 mm x 0.8 mm at rear-side connection (punched) Max. 10 segments of 16 mm x 0.8 mm at rear-side connection (punched)
Design verification as per IEC/EN 61439 - technical data			
Rated operational current for specified heat dissipation (In)			250 A
Equipment heat dissipation, current-dependent			58.13 W
Design verification as per IEC/EN 61439			
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 Resist. of insul. mat. to abnormal heat/fire by internal elect. 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.
10.9.2 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.
Additional information			
Functions			System and cable protection Photovoltaic applications

Technical data ETIM 6.0

Low-voltage industrial components (EG000017) / Power circuit-breaker for trafo/generator/installation prot. (EC000228)

Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Circuit breaker for power transformer, generator and system protection (ecl@ss8.1-27-37-04-09 [AJZ716010])

Rated permanent current Iu		A	250
Rated voltage		V	690 - 690
Rated short-circuit breaking capacity Icu at 400 V, 50 Hz		kA	50
Overload release current setting		A	200 - 250
Adjustment range short-term delayed short-circuit release		A	0 - 0
Adjustment range undelayed short-circuit release		A	1500 - 2500
Integrated earth fault protection			No
Type of electrical connection of main circuit			Screw connection
Device construction			Built-in device fixed built-in technique
Suitable for DIN rail (top hat rail) mounting			No
DIN rail (top hat rail) mounting optional			Yes
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
Switched-off indicator available			No

With under voltage release	No
Number of poles	3
Position of connection for main current circuit	Front side
Type of control element	Rocker lever
Complete device with protection unit	Yes
Motor drive integrated	No
Motor drive optional	Yes
Degree of protection (IP)	IP20

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