

## Circuit-breaker, 3 p, 20A

Part no.

LZMC1-A20-I  
111888

Powering Business Worldwide™

## General specifications

Product name	Eaton Moeller series Power Defense molded case circuit-breaker
Part no.	LZMC1-A20-I
EAN	4015081114368
Product Length/Depth	88 millimetre
Product height	145 millimetre
Product width	90 millimetre
Product weight	1.014 kilogram
Compliances	RoHS conform
Certifications	IEC VDE 0660 IEC/EN 60947
Product Tradename	Power Defense
Product Type	Molded case circuit breaker
Product Sub Type	None

## Delivery program

Application	Use in unearthing supply systems at 690 V
Type	Circuit breaker
Circuit breaker frame type	LZM1
Number of poles	Three-pole
Amperage Rating	20 A
Release system	Thermomagnetic release
Features	Protection unit
Special features	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 $I_{cn}$ Rated current = rated uninterrupted current: 20 A)

## Technical Data - Electrical

Voltage rating	690 V - 690 V
Rated insulation voltage ( $U_i$ )	690 V AC
Rated impulse withstand voltage ( $U_{imp}$ ) at auxiliary contacts	6000 V
Rated impulse withstand voltage ( $U_{imp}$ ) at main contacts	6000 V
Rated operational current	20 A (660-690 V AC-3, making and breaking capacity) 160 A (380/400 V AC-1, making and breaking capacity) 160 A (690 V AC-1, making and breaking capacity) 20 A (415 V AC-3, making and breaking capacity) 125 A (415 V AC-1, making and breaking capacity)
Instantaneous current setting ( $I_i$ ) - min	350 A
Instantaneous current setting ( $I_i$ ) - max	350 A
Overload current setting ( $I_r$ ) - min	15 A
Overload current setting ( $I_r$ ) - max	20 A
Short delay current setting ( $I_{sd}$ ) - min	0 A
Short delay current setting ( $I_{sd}$ ) - max	0 A
Short-circuit release non-delayed setting - min	350 A
Short-circuit release non-delayed setting - max	350 A
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 230 V, 50/60 Hz	55 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 400/415 V, 50/60 Hz	36 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 440 V, 50/60 Hz	22.5 kA
Rated short-circuit breaking capacity $I_{cs}$ (IEC/EN 60947) at 525 V, 50/60 Hz	6 kA
Rated short-circuit making capacity $I_{cm}$ at 240 V, 50/60 Hz	121 kA
Rated short-circuit making capacity $I_{cm}$ at 400/415 V, 50/60 Hz	76 kA
Rated short-circuit making capacity $I_{cm}$ at 440 V, 50/60 Hz	63 kA
Rated short-circuit making capacity $I_{cm}$ at 525 V, 50/60 Hz	24 kA

Rated short-circuit making capacity $I_{cm}$ at 690 V, 50/60 Hz	14 kA
Short-circuit total breaktime	< 10 ms
Electrical connection type of main circuit	Frame clamp
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 415 V AC-3 10000 operations at 415 V AC-1 7500 operations at 690 V AC-1 10000 operations at 400 V AC-1
Direction of incoming supply	As required
<b>Technical Data - Mechanical</b>	
Mounting Method	Built-in device fixed built-in technique DIN rail (top hat rail) mounting optional Fixed
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)	IP00 (terminations, phase isolator and band terminal) IP10 (tunnel 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, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78
Special features	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 $I_{cm}$ ) Rated current = rated uninterrupted current: 20 A
Lifespan, mechanical	20000 operations
<b>Technical Data - Mechanical - Terminals</b>	
Standard terminals	Box terminal
Terminal capacity (control cable)	0.75 mm <sup>2</sup> - 1.5 mm <sup>2</sup> (2x) 0.75 mm <sup>2</sup> - 2.5 mm <sup>2</sup> (1x)
Terminal capacity (aluminum solid conductor/cable)	16 mm <sup>2</sup> (1x) at tunnel terminal
Terminal capacity (aluminum stranded conductor/cable)	25 mm <sup>2</sup> - 95 mm <sup>2</sup> (1x) at tunnel terminal
Terminal capacity (copper busbar)	M8 at rear-side screw connection Min. 12 mm x 5 mm direct at switch rear-side connection Max. 16 mm x 5 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)	6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) at box terminal 6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) direct at switch rear-side connection 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) direct at switch rear-side connection 10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) at box terminal 16 mm <sup>2</sup> - 95 mm <sup>2</sup> (1x) at tunnel terminal
Terminal capacity (copper stranded conductor/cable)	25 mm <sup>2</sup> - 70 mm <sup>2</sup> (1x) direct at switch rear-side connection 25 mm <sup>2</sup> - 70 mm <sup>2</sup> (1x) at box terminal 25 mm <sup>2</sup> (2x) direct at switch rear-side connection 25 mm <sup>2</sup> - 95 mm <sup>2</sup> (1x) at tunnel terminal 25 mm <sup>2</sup> (2x) at box terminal
Terminal capacity (copper strip)	Max. 9 segments of 9 mm x 0.8 mm at box terminal Min. 2 segments of 9 mm x 0.8 mm at box terminal
<b>Design verification as per IEC/EN 61439 - technical data</b>	
Rated operational current for specified heat dissipation ( $I_{in}$ )	20 A
Equipment heat dissipation, current-dependent	9.82 W
<b>Design verification as per IEC/EN 61439</b>	
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
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