

## Circuit-breaker, 4 p, 20A

**Part no.**                    **LZMB1-4-A20-I**  
**111868**

Product name	Eaton Moeller series Power Defense molded case circuit-breaker
Part no.	LZMB1-4-A20-I
EAN	4015081114160
Product Length/Depth	88 millimetre
Product height	145 millimetre
Product width	120 millimetre
Product weight	1.324 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
Application	Use in unearthed supply systems at 440 V
Type	Circuit breaker
Circuit breaker frame type	LZM1
Number of poles	Four-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 <sub>cn</sub> ) Rated current = rated uninterrupted current: 20 A Set value in neutral conductor is synchronous with set value I <sub>r</sub> of main pole.
Voltage rating	440 V - 440 V
Rated insulation voltage (U <sub>i</sub> )	690 V AC
Rated impulse withstand voltage (U <sub>imp</sub> ) at auxiliary contacts	6000 V
Rated impulse withstand voltage (U <sub>imp</sub> ) at main contacts	6000 V
Current rating of neutral conductor	200% of phase conductor
Rated operational current	20 A (415 V AC-3, making and breaking capacity) 160 A (380/400 V AC-1, making and breaking capacity) 20 A (660-690 V AC-3, making and breaking capacity) 125 A (415 V AC-1, making and breaking capacity)
Instantaneous current setting (I <sub>i</sub> ) - min	350 A
Instantaneous current setting (I <sub>i</sub> ) - max	350 A
Overload current setting (I <sub>r</sub> )	15 A - 20 A
Overload current setting (I <sub>r</sub> ) - min	15 A
Overload current setting (I <sub>r</sub> ) - max	20 A
Short delay current setting (I <sub>sd</sub> ) - min	0 A
Short delay current setting (I <sub>sd</sub> ) - 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 <sub>cs</sub> (IEC/EN 60947) at 230 V, 50/60 Hz	30 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 400/415 V, 50/60 Hz	25 kA
Rated short-circuit breaking capacity I <sub>cs</sub> (IEC/EN 60947) at 440 V, 50/60 Hz	18.5 kA
Rated short-circuit making capacity I <sub>cm</sub> at 240 V, 50/60 Hz	63 kA
Rated short-circuit making capacity I <sub>cm</sub> at 400/415 V, 50/60 Hz	53 kA
Rated short-circuit making capacity I <sub>cm</sub> at 440 V, 50/60 Hz	53 kA

Short-circuit total breaktime		< 10 ms
Electrical connection type of main circuit		Frame clamp
Isolation		500 V AC (between auxiliary contacts and main contacts) 300 V AC (between the auxiliary 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		10000 operations at 415 V AC-1 7500 operations at 415 V AC-3 7500 operations at 400 V AC-1
Direction of incoming supply		As required
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		IP40 (with insulating surround) IP66 (with door coupling rotary handle)
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, 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 Icn) Rated current = rated uninterrupted current: 20 A Set value in neutral conductor is synchronous with set value Ir of main pole.
Lifespan, mechanical		20000 operations
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)		Min. 12 mm x 5 mm direct at switch rear-side connection M8 at rear-side screw connection Max. 16 mm x 5 mm direct at switch rear-side connection
Terminal capacity (copper solid conductor/cable)		10 mm <sup>2</sup> - 16 mm <sup>2</sup> (1x) 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 16 mm <sup>2</sup> - 95 mm <sup>2</sup> (1x) at tunnel terminal 6 mm <sup>2</sup> - 16 mm <sup>2</sup> (2x) at box terminal
Terminal capacity (copper stranded conductor/cable)		25 mm <sup>2</sup> (2x) at box terminal 25 mm <sup>2</sup> (2x) 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> - 95 mm <sup>2</sup> (1x) at tunnel terminal 25 mm <sup>2</sup> - 70 mm <sup>2</sup> (1x) direct at switch rear-side connection
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
Rated operational current for specified heat dissipation (In)		20 A
Equipment heat dissipation, current-dependent		9.82 W
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.
Functions			System and cable protection