

Specifications



Eaton 199160

Eaton Moeller® series PKZM0 Motor-protective circuit-breaker, 9 kW, 16 - 20 A, Push in terminals

General specifications

PRODUCT NAME	Eaton Moeller® series PKZM0 Motor-protective circuit-breaker
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CATALOG NUMBER	199160
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MODEL CODE	PKZM0-20-PI
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EAN	4015081972449
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PRODUCT LENGTH/DEPTH	75 mm
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PRODUCT HEIGHT	109 mm
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PRODUCT WIDTH	45 mm
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PRODUCT WEIGHT	0.349 kg
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CERTIFICATIONS	IEC/EN 60947 VDE 0660 UL CSA IEC/EN 60947-4-1 UL 60947-4-1 CSA-C22.2 No. 60947-4-1-14 CE UL File No.: E36332 UL Category Control No.: NLRV CSA File No.: 165628 CSA Class No.: 3211-05
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Climatic environmental conditions

ALTITUDE	Max. 2000 m
AMBIENT OPERATING TEMPERATURE - MAX	55 °C
AMBIENT STORAGE TEMPERATURE - MAX	80 °C
AMBIENT OPERATING TEMPERATURE - MIN	-25 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MAX	40 °C
AMBIENT OPERATING TEMPERATURE (ENCLOSED) - MIN	-25 °C
AMBIENT STORAGE TEMPERATURE - MIN	-40 °C
CLIMATIC PROOFING	Damp heat, cyclic, to IEC 60068-2-30 Damp heat, constant, to IEC 60068-2-78

Contacts

NUMBER OF AUXILIARY CONTACTS (CHANGE-OVER CONTACTS)	0
NUMBER OF AUXILIARY CONTACTS (NORMALLY CLOSED CONTACTS)	0
NUMBER OF AUXILIARY CONTACTS (NORMALLY OPEN CONTACTS)	0

Design verification

**RATED OPERATIONAL
CURRENT FOR SPECIFIED
HEAT DISSIPATION (IN)** 20 A

**STATIC HEAT
DISSIPATION, NON-
CURRENT-DEPENDENT
PVS** 0 W

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.

**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

Electrical rating

**RATED FREQUENCY -
MAX** 60 Hz

RATED FREQUENCY - MIN 50 Hz

**RATED OPERATIONAL
CURRENT (IE)** 20 A

**RATED OPERATIONAL
POWER AT AC-3E,
220/230 V, 50 HZ** 5.5 kW

**RATED OPERATIONAL
POWER AT AC-3E,
380/400 V, 50 HZ** 9 kW

**RATED OPERATIONAL
POWER AT AC-3E, 440 V,
50 HZ** 11 kW

**RATED OPERATIONAL
POWER AT AC-3E, 500 V,
50 HZ** 12.5 kW

**RATED OPERATIONAL
POWER AT AC-3E, 690 V,
50 HZ** 15 kW

**RATED OPERATIONAL
VOLTAGE (UE) - MAX** 690 V

**RATED OPERATIONAL
VOLTAGE (UE) - MIN** 690 V

**RATED UNINTERRUPTED
CURRENT (IU)** 20 A

	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.
EQUIPMENT HEAT DISSIPATION, CURRENT-DEPENDENT PVID	5.82 W
HEAT DISSIPATION CAPACITY PDISS	0 W
HEAT DISSIPATION PER POLE, CURRENT-DEPENDENT PVID	1.9 W

Features & functions	
ACTUATOR TYPE	Turn button
FEATURES	Phase-failure sensitivity (according to IEC/EN 60947-4-1, VDE 0660 Part 102)
FUNCTIONS	Motor protection Phase failure sensitive
NUMBER OF POLES	Three-pole

General information	
CONNECTION	Push in terminals
DEGREE OF PROTECTION	IP20
LIFESPAN, ELECTRICAL	100,000 operations
LIFESPAN, MECHANICAL	100,000 Operations
MOUNTING METHOD	DIN rail (top hat rail) mounting optional
MOUNTING POSITION	Can be snapped on to IEC/EN 60715 top-hat rail with 7.5 or 15 mm height.
OPERATING FREQUENCY	40 Operations/h
OVERVOLTAGE CATEGORY	III
POLLUTION DEGREE	3
PRODUCT CATEGORY	Motor protective circuit

	breaker
PROTECTION	Finger and back-of-hand proof, Protection against direct contact when actuated from front (EN 50274)
RATED IMPULSE WITHSTAND VOLTAGE (UIMP)	6000 V AC
SHOCK RESISTANCE	25 g, Mechanical, according to IEC/EN 60068-2-27, Half-sinusoidal shock 10 ms
SUITABLE FOR	Also motors with efficiency class IE3 Branch circuit: Manual type E in combination with contactor DILM and terminal BK25/3-PKZ0-E, or suitable for group installations, (UL/CSA)
TEMPERATURE COMPENSATION	≤ 0.25 %/K, residual error for T > 40° -25 - 55 °C, Operating range -5 - 40 °C to IEC/EN 60947, VDE 0660
USED WITH	Motor starter combinations type MSC...

Motor rating

**ASSIGNED MOTOR
POWER AT 115/120 V, 60
HZ, 1-PHASE** 1.5 HP

**ASSIGNED MOTOR
POWER AT 200/208 V, 60
HZ, 3-PHASE** 5 HP

**ASSIGNED MOTOR
POWER AT 230/240 V, 60
HZ, 1-PHASE** 3 HP

**ASSIGNED MOTOR
POWER AT 575/600 V, 60
HZ, 3-PHASE** 15 HP

Short-circuit rating

**RATED SHORT-CIRCUIT
BREAKING CAPACITY ICS
AT 400 V AC** 38 kA

**RATED SHORT-CIRCUIT
BREAKING CAPACITY ICS
AT 440 V AC** 3 kA

**RATED SHORT-CIRCUIT
BREAKING CAPACITY ICS
AT 500 V AC** 3 kA

**RATED SHORT-CIRCUIT
BREAKING CAPACITY ICS
AT 690 V AC** 1 kA

**RATED SHORT-CIRCUIT
BREAKING CAPACITY ICU
AT 400 V AC** 50 kA

**RATED SHORT-CIRCUIT
BREAKING CAPACITY ICU
AT 440 V AC** 10 kA

**RATED SHORT-CIRCUIT
BREAKING CAPACITY ICU
AT 500 V AC** 3 kA

RATED SHORT-CIRCUIT BREAKING CAPACITY ICU AT 690 V AC	3 kA
SHORT-CIRCUIT CURRENT RATING (GROUP PROTECTION)	10 kA, 600 V High Fault, Fuse, SCCR (UL/CSA) with 150 A, 600 V High Fault, Fuse, SCCR (UL/CSA) 10 kA, 600 V High Fault, CB, SCCR (UL/CSA) with 125 A, 600 V High Fault, CB, SCCR (UL/CSA) 18 kA, 600 V High Fault, Fuse with CL, SCCR (UL/CSA) with 600 A, 600 V High Fault, Fuse with CL, SCCR (UL/CSA) 18 kA, 600 V High Fault, CB with CL, SCCR (UL/CSA) with 600 A, 600 V High Fault, CB with CL, SCCR (UL/CSA) 18 kA, 480 V High Fault, CB, SCCR (UL/CSA) with 600 A, 480 V High Fault, CB, SCCR (UL/CSA) 18 kA, 480 V High Fault, Fuse, SCCR (UL/CSA) with 600 A, 480 V High Fault, Fuse, SCCR (UL/CSA)
SHORT-CIRCUIT CURRENT RATING (TYPE E)	18 kA, 240 V, SCCR (UL/CSA) with contactor DILM25 18 kA, 480 Y/277 V, SCCR (UL/CSA) with contactor DILM25
SHORT-CIRCUIT RELEASE	Basic device fixed 15.5 x lu ± 20% tolerance 310 A, I _{rm}

Switching capacity

SWITCHING CAPACITY	20 A, AC-3 up to 690 V
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Terminal capacities

STRIPPING LENGTH (MAIN CABLE)	12 mm
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TERMINAL CAPACITY (FLEXIBLE WITH UNISOLATED FERRULE)	1 x (1 - 6) mm ² 2 x (1 - 6) mm ²
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TERMINAL CAPACITY (FLEXIBLE WITH FERRULE)	1 x (1 - 6) mm ² , Push-in terminals, ferrule to DIN 46228-1 2 x (1 - 6) mm ² , Push-in terminals, ferrule to DIN 46228-1 1 x (1 - 6) mm ² , Push-in terminals, ferrule to DIN 46228-4
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	2 x (1 - 4) mm ² , Push-in terminals, ferrule to DIN 46228-4
TERMINAL CAPACITY (FLEXIBLE)	1 x (1 - 6) mm ² 2 x (1 - 6) mm ² 1 x (1 - 6) mm ² , Push-in terminals 2 x (1 - 6) mm ² , Push-in terminals
TERMINAL CAPACITY (FLEXIBLE WITH ULTRASONIC WELDED CABLE END)	1 x (1 - 10) mm ² 2 x (1 - 6) mm ²
TERMINAL CAPACITY (SOLID)	1 x (1 - 6) mm ² , Push-in terminals 2 x (1 - 6) mm ² , Push-in terminals 1 x (1 - 6) mm ² 2 x (1 - 6) mm ²
TERMINAL CAPACITY (SOLID/STRANDED AWG)	18 - 8

Trip blocks

**OVERLOAD RELEASE
CURRENT SETTING - MAX** 20 A

**OVERLOAD RELEASE
CURRENT SETTING - MIN** 16 A

**TRIPPING
CHARACTERISTIC** Overload trigger: tripping class 10 A

Resources

BROCHURES [eaton-push-in-technology-product-overview-brochure-br034012-en-us.pdf](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-push-in-technology-product-overview-brochure-br034012-en-us.pdf)

[eaton-motor-starters-system-xstart-brochure-br03407001-en-en-us.pdf](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-motor-starters-system-xstart-brochure-br03407001-en-en-us.pdf)

CATALOGUES [eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-product-overview-for-machinery-catalogue-ca08103003zen-en-us.pdf)

DECLARATIONS OF CONFORMITY [eaton-motor-protective-circuit-breaker-declaration-of-conformity-uk251170en.pdf](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-motor-protective-circuit-breaker-declaration-of-conformity-uk251170en.pdf)

[eaton-motor-protective-circuit-breaker-declaration-of-conformity-eu250687en.pdf](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-motor-protective-circuit-breaker-declaration-of-conformity-eu250687en.pdf)

DRAWINGS [eaton-manual-motor-starters-pkz-dimensions.eps](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-manual-motor-starters-pkz-dimensions.eps)
[eaton-manual-motor-starters-pkz-dimensions-002.eps](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-manual-motor-starters-pkz-dimensions-002.eps)
[eaton-manual-motor-starters-pkzm-pkzm0-dimensions.eps](https://www.eaton.com/content/dam/eaton/products/motor-starters/eaton-manual-motor-starters-pkzm-pkzm0-dimensions.eps)

ECAD MODEL [ETN.199160.edz](https://www.eaton.com/content/dam/eaton/products/motor-starters/ETN.199160.edz)

INSTALLATION INSTRUCTIONS	IL122024ZU
INSTALLATION VIDEOS	WIN-WIN with push-in technology
MCAD MODEL	eaton-breakers-mcad-drawings-schutzschalter-bis-32a-pi.dwg eaton-motor-protective-circuit-breakers-mcad-3d-models-pkzm0-pi.stp
SALES NOTES	eaton-link-module-for-motor-starters-pkz-flyer-fl034003en-en-us.pdf

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



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