



**Motor-protective circuit-breaker, 3p, I<sub>r</sub> = 32 - 40 A, screw connection**

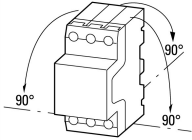
**Part no.** PKZM4-40  
**Article no.** 222354  
**Catalog No.** XTPR040DC1NL

**Delivery program**

|  |                |             |  |  |
|--|----------------|-------------|--|--|
| Product range  |                |             |  | PKZM4 motor protective circuit-breakers up to 65 A   |
| Basic function   |                |             |  | Motor protection   |
|  |                |             |  |  |
| Notes  |                |             |  | Also suitable for motors with efficiency class IE3. IE3-ready devices are identified by the logo on their packaging. |
| Connection technique   |                |             |  | Screw terminals  |
| Contact sequence   |                |             |  |  |
| <b>Max. motor rating</b>   |                |             |  |  |
| AC-3   |                |             |  |  |
| 220 V 230 V 240 V  | P              | kW          |  | 11   |
| 380 V 400 V 415 V  | P              | kW          |  | 20   |
| 440 V  | P              | kW          |  | 22   |
| 500 V  | P              | kW          |  | 24   |
| 660 V 690 V  | P              | kW          |  | 30   |
| <b>Setting range</b>   |                |             |  |  |
| Overload releases  | I <sub>r</sub> | A           |  | 32 - 40  |
|  |                |             |  |  |
| Short-circuit releases   |                |             |  |  |
|  |                |             |  |  |
| max.   | I <sub>m</sub> | A           |  | 620  |
| <b>Notes</b>   |                |             |  |  |
|  |                |             |  |  |
| <b>Accessories</b>   |                | <b>Page</b> |  |  |
| 3 Standard auxiliary contact   |                | → 072896    |  |  |
| 5 Trip-indicating auxiliary contact                                      |                | → 072898    |  |  |
| 6 Shunt release, undervoltage release                                    |                | → 073187    |  |  |
| Phase failure sensitivity to IEC/EN 60947-4-1, VDE 0660 part 102         |                |             |  |  |
| Can be snap-fitted to IEC/EN 60715 top-hat rail with 7.5 or 15 mm height |                |             |  |  |
|  |                | → 266165    |  |  |
|  |                |             |  |  |
| PTB 10 ATEX 3012, see manual   |                |             |  |  |

**Technical data**

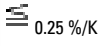
|                   |  |  |  |  |
|-------------------|--|--|--|--|
| <b>General</b>    |  |  |  |  |
| Climatic proofing |  |  |  | Damp heat, constant, to IEC 60068-2-78 |

|   |   |                 |  |
|---|---|-----------------|--|
|   |   |                 | Damp heat, cyclic, to IEC 60068-2-30   |
| Ambient temperature   |   |                 |  |
| Storage   | θ | °C              | -40 - +80  |
| Open  |   | °C              | -25 - +55  |
| Enclosed  |   | °C              | -25 - +40  |
| Mounting position   |   |                 |  |
| Direction of incoming supply  |   |                 | as required  |
| Degree of protection  |   |                 |  |
| Device  |   |                 | IP20   |
| Terminations  |   |                 | IP00   |
| Protection against direct contact   |   |                 | Finger and back-of-hand proof  |
| Mechanical shock resistance half-sinusoidal shock 10 ms to IEC 60068-2-27 |   | g               | 15   |
| Altitude  |   | m               | 2000   |
| Terminal capacities   |   | mm <sup>2</sup> |  |
| Solid   |   | mm <sup>2</sup> | 1 x (1 - 50)<br>2 x (1 - 35)   |
| Flexible with ferrule   |   | mm <sup>2</sup> | 1 x (1 - 35)<br>2 x (1 - 35)   |
| Solid or stranded   |   | AWG             | 14 - 2   |
| Specified tightening torque for terminal screws                           |   |                 |  |
| Main cable  |   | Nm              | 3.3  |
| Control circuit cables  |   | Nm              | 1  |

### Main conducting paths

|   |             |                   |                           |
|---|-------------|-------------------|---------------------------|
| Rated impulse withstand voltage                         | $U_{imp}$   | V AC              | 6000                      |
| Overvoltage category/pollution degree                   |             |                   | III/3                     |
| Rated operational voltage                               | $U_e$       | V AC              | 690                       |
| Rated uninterrupted current = rated operational current | $I_u = I_e$ | A                 | 40 open<br>40 enclosed    |
| Rated uninterrupted current = rated operational current | $I_u = I_e$ | A                 | 40                        |
| Rated frequency   | f           | Hz                | 40 - 60                   |
| Current heat loss (3 pole at operating temperature)     |             | W                 | 20.7                      |
| Lifespan, mechanical                                    | Operations  | $\times 10^6$     | 0.03                      |
| Lifespan, electrical                                    | Operations  |                   | 30000                     |
| Maximum operating frequency                             |             | Ops./h            |                           |
| Max. operating frequency                                |             | Ops/h             | 40                        |
| Motor switching capacity                                |             | kA <sub>rms</sub> |                           |
| DC - 5  |             | V                 | 250/60 kA                 |
| DC-5 (up to 250 V)                                      |             | A                 | 63 (3 contacts in series) |

### Trip blocks

|   |  |    |  |
|---|--|----|--|
| Temperature compensation                            |  | °C | -5 - +40 (to IEC/EN 60947, VDE 0660)<br>-25 - +55 (operating range)                          |
| Temperature compensation residual error for T > 40° |  |    |  0.25 %/K |
| Setting range of overload releases                  |  |    | 0.6 - 1 x $I_u$  |
| short-circuit release                               |  |    | Basic device, fixed: 15.5 x $I_u$  |
| Short-circuit release tolerance                     |  |    | ± 20%  |
| Phase-failure sensitivity                           |  |    | IEC/EN 60947-1-1, VDE 0660 Part 102  |

### Design verification as per IEC/EN 61439

|  |           |   |      |
|--|-----------|---|------|
| Technical data for design verification                   |           |   |      |
| Rated operational current for specified heat dissipation | $I_n$     | A | 40   |
| Heat dissipation per pole, current-dependent             | $P_{vid}$ | W | 6.9  |
| Equipment heat dissipation, current-dependent            | $P_{vid}$ | W | 20.7 |
| Static heat dissipation, non-current-dependent           | $P_{vs}$  | W | 0    |

|  |                   |    |  |
|--|-------------------|----|--|
| Heat dissipation capacity  | P <sub>diss</sub> | W  | 0  |
| Operating ambient temperature min.   |                   | °C | -25  |
| Operating ambient temperature max.   |                   | °C | 55   |
| 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.                         |

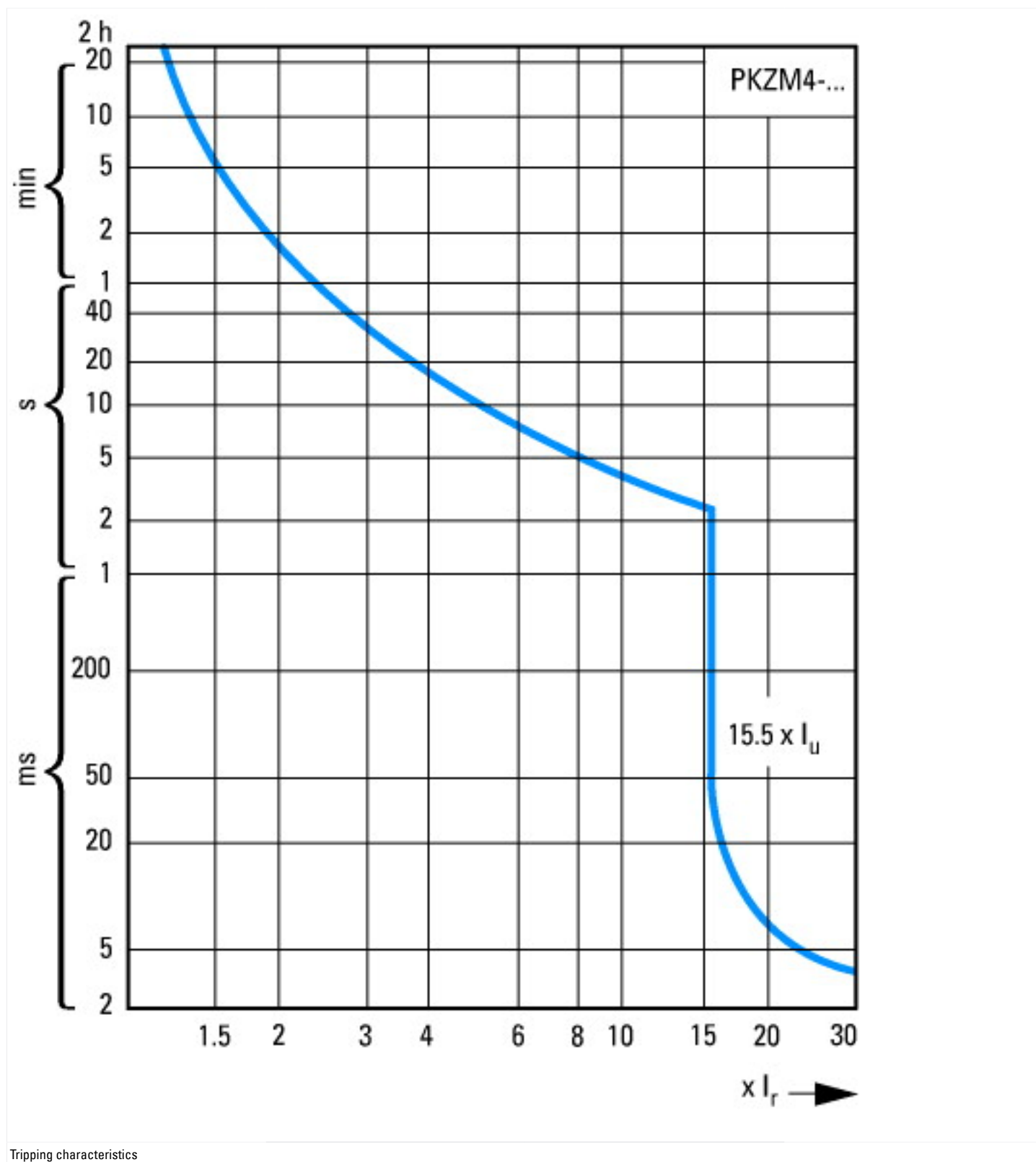
## Technical data ETIM 6.0

|  |  |    |  |
|--|--|----|--|
| Low-voltage industrial components (EG000017) / Motor protection circuit-breaker (EC000074)   |  |    |  |
| Electric engineering, automation, process control engineering / Low-voltage switch technology / Circuit breaker (LV < 1 kV) / Motor protection circuit-breaker (ecl@ss8.1-27-37-04-01 [AGZ529013]) |  |    |  |
| Overload release current setting   |  | A  | 32 - 40                                  |
| Adjustment range undelayed short-circuit release   |  | A  | 620 - 620                                |
| Thermal protection   |  |    | No                                       |
| Phase failure sensitive  |  |    | Yes                                      |
| Switch off technique   |  |    | Thermomagnetic                           |
| Rated operating voltage  |  | V  | 690 - 690                                |
| Rated permanent current I <sub>u</sub>   |  | A  | 40                                       |
| Rated operation power at AC-3, 230 V   |  | kW | 11                                       |
| Rated operation power at AC-3, 400 V   |  | kW | 20                                       |
| Type of electrical connection of main circuit  |  |    | Screw connection                         |
| Type of control element  |  |    | Turn button                              |
| Device construction  |  |    | Built-in device fixed built-in technique |
| With integrated auxiliary switch   |  |    | No                                       |
| With integrated under voltage release  |  |    | No                                       |
| Number of poles  |  |    | 3  |
| Rated short-circuit breaking capacity I <sub>cu</sub> at 400 V, AC   |  | kA | 50                                       |
| Degree of protection (IP)  |  |    | IP20                                     |
| Height   |  | mm | 140                                      |
| Width  |  | mm | 55                                       |
| Depth  |  | mm | 160                                      |

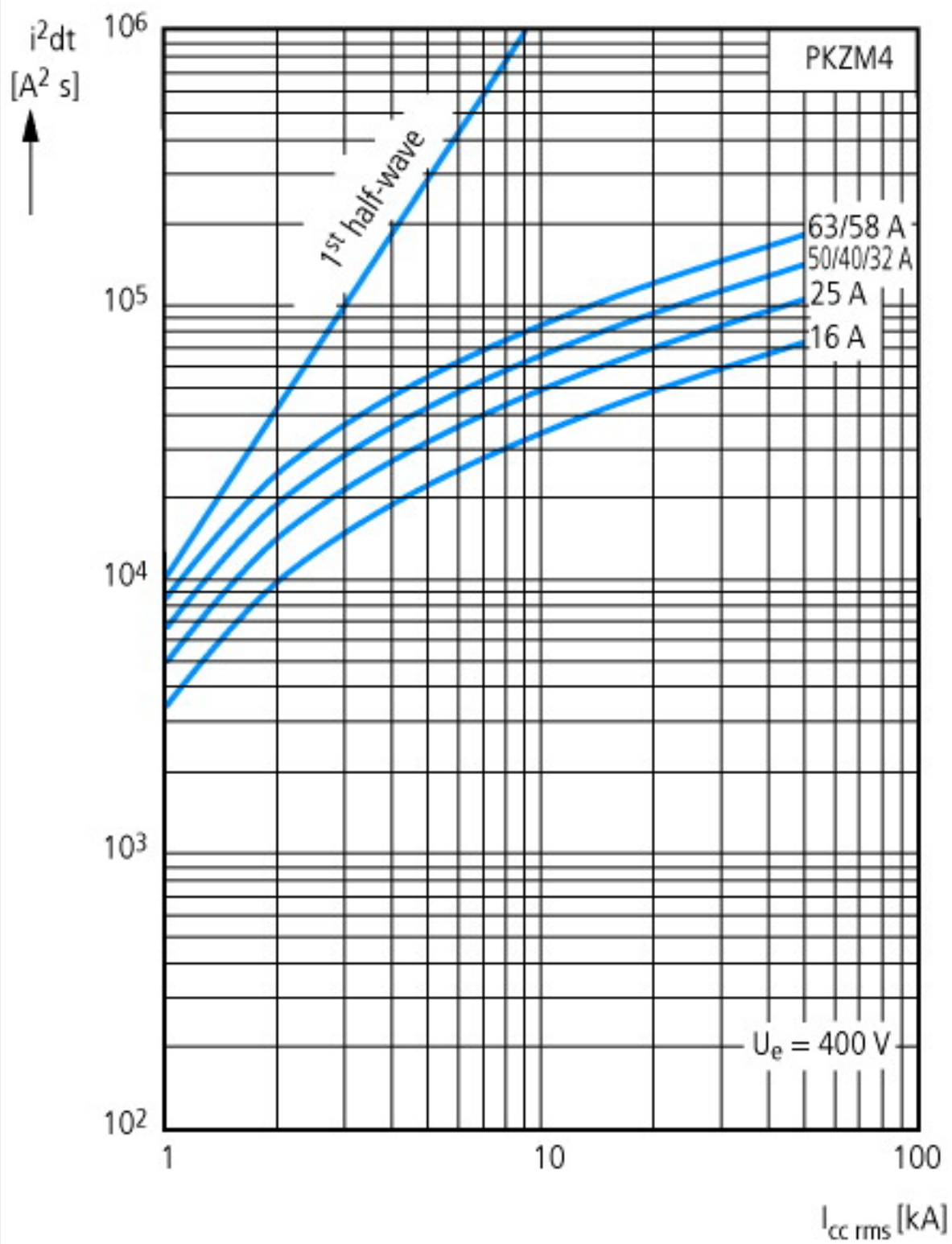
## Approvals

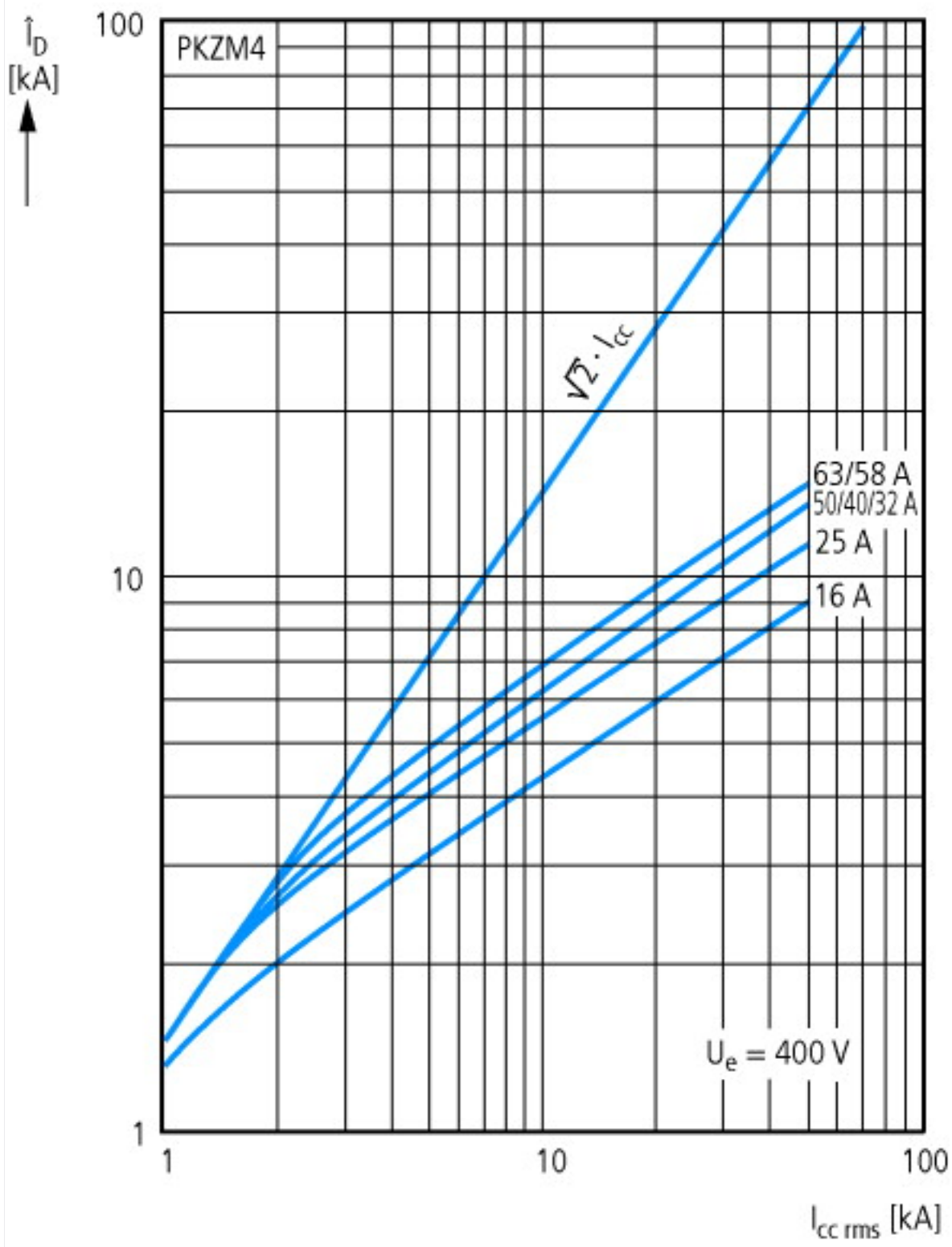
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|--------------------------------------|--|
| Product Standards                    | UL 508; CSA-C22.2 No. 14; IEC60947-4-1; CE marking                                       |
| UL File No.                          | E36332   |
| UL Category Control No.              | NLRV   |
| CSA File No.                         | 165628   |
| CSA Class No.                        | 3211-05  |
| North America Certification          | UL listed, CSA certified   |
| Specially designed for North America | No   |
| Suitable for                         | Branch circuit: Manual type E if used with terminal, or suitable for group installations |

## Characteristics



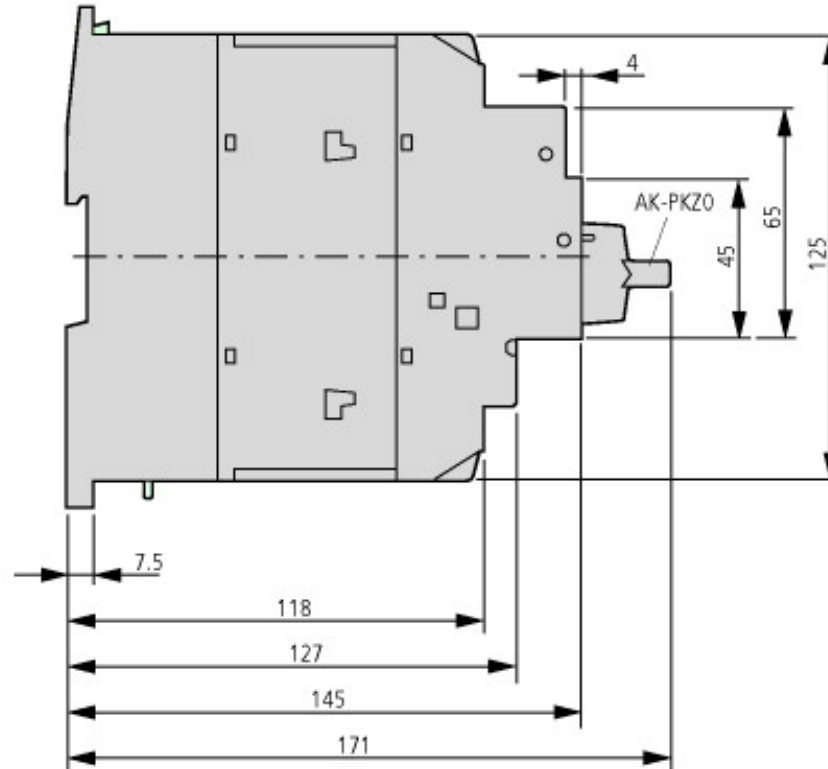
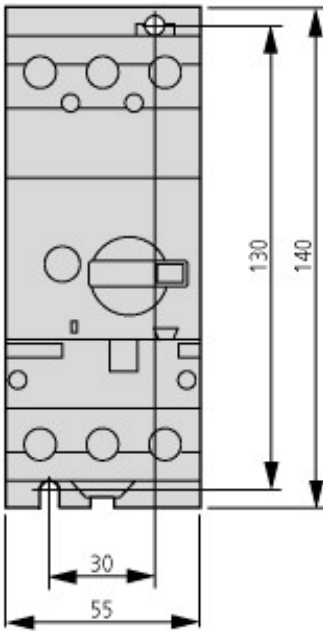
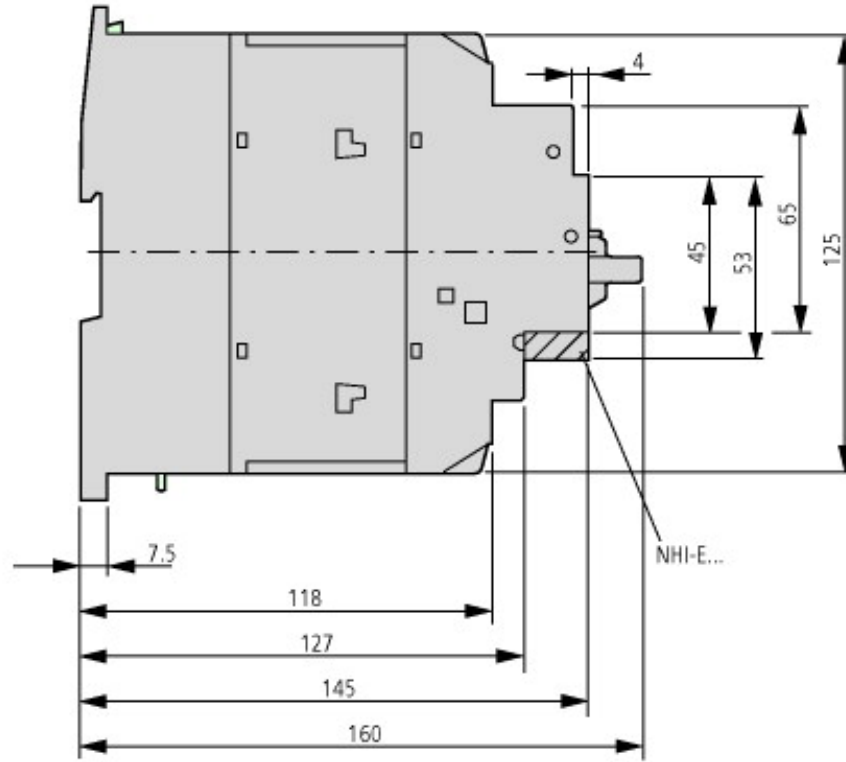
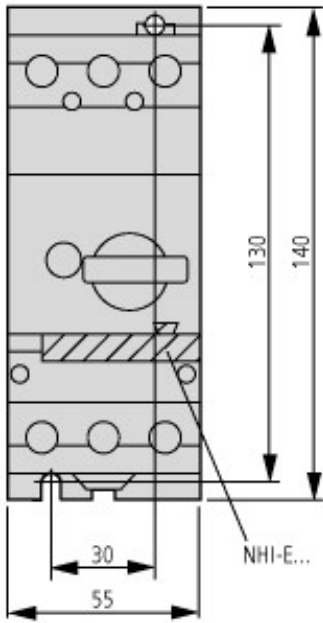
Tripping characteristics





Let-through characteristics

## Dimensions



PKZM4-... +AK-PKZO

## Additional product information (links)

### IL03407012Z (AWA1210-1859) Motor-protective circuit-breaker

IL03407012Z (AWA1210-1859) Motor-protective circuit-breaker [ftp://ftp.moeller.net/DOCUMENTATION/AWA\\_INSTRUCTIONS/IL03407012Z2014\\_02.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407012Z2014_02.pdf)

### MN03402002Z (AWB1210-1457) PKZM4 motor-protective circuit-breakers, overload monitoring of Ex e motors

MN03402002Z (AWB1210-1457) PKZM4 motor-protective circuit-breakers, overload monitoring of Ex e motors - Deutsch / English [ftp://ftp.moeller.net/DOCUMENTATION/AWB\\_MANUALS/MN03402002Z\\_DE\\_EN.pdf](ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03402002Z_DE_EN.pdf)

switching capacity of the circuit-breakers <http://de.ecat.moeller.net/flip-cat/?edition=HPLTEv1&startpage=7.36>

Motor starters and "Special Purpose Ratings" for the North American market [http://www.moeller.net/binary/ver\\_techpapers/ver953en.pdf](http://www.moeller.net/binary/ver_techpapers/ver953en.pdf)

Busbar Component Adapters for modern Industrial control panels [http://www.moeller.net/binary/ver\\_techpapers/ver960en.pdf](http://www.moeller.net/binary/ver_techpapers/ver960en.pdf)

