


**Motor-protective circuit-breaker, 3p, 12A, electronic, basic device**


**Part no.** PKE12  
**Catalog No.** 121721  
**Alternate Catalog No.** XTPE012BNL  
**EL-Nummer (Norway)** 4355179

**Delivery program**

|                                                         |             |     |                                                                                                                         |
|---------------------------------------------------------|-------------|-----|-------------------------------------------------------------------------------------------------------------------------|
| Product range                                           |             |     | PKE motor protective circuit-breakers with electronic wide-range overload protection up to 32 A                         |
| Basic function                                          |             |     | Motor protection<br>Motor protection for heavy starting duty                                                            |
| Single unit/Complete unit                               |             |     | Basic device with standard knob                                                                                         |
|                                                         |             |     |                                                                                                                         |
| Notes                                                   |             |     | Also suitable for motors with efficiency class IE3.<br>IE3-ready devices are identified by the logo on their packaging. |
| Setting range of useable overload releases              | $I_r$       | CSA | 0.3 - 12                                                                                                                |
| Function                                                |             |     | Without overload releases                                                                                               |
| Rated uninterrupted current = rated operational current | $I_u = I_e$ | A   | 12                                                                                                                      |

**Technical data**
**General**

|                                                                           |  |                 |                                                                                |
|---------------------------------------------------------------------------|--|-----------------|--------------------------------------------------------------------------------|
| Standards                                                                 |  |                 | IEC/EN 60947, VDE 0660, UL, CSA                                                |
| Climatic proofing                                                         |  |                 | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature                                                       |  |                 |                                                                                |
| Storage                                                                   |  | °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 when actuated from front (EN 50274)     |  |                 | Finger and back-of-hand proof                                                  |
| Mechanical shock resistance half-sinusoidal shock 10 ms to IEC 60068-2-27 |  | g               | 25                                                                             |
| Altitude                                                                  |  | m               | Max. 2000                                                                      |
| Terminal capacity main cable                                              |  |                 |                                                                                |
| Screw terminals                                                           |  |                 |                                                                                |
| Solid                                                                     |  | mm <sup>2</sup> | 1 x (1 - 6)<br>2 x (1 - 6)                                                     |
| Flexible with ferrule to DIN 46228                                        |  | mm <sup>2</sup> | 1 x (1 - 6)<br>2 x (1 - 6)                                                     |
| Solid or stranded                                                         |  | AWG             | 14 - 10                                                                        |
| Stripping length                                                          |  | mm              | 10                                                                             |
| Specified tightening torque for terminal screws                           |  |                 |                                                                                |
| Main cable                                                                |  | Nm              | 1.7                                                                            |
| 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             | 12      |
| Rated frequency                                         | f           | Hz            | 40 - 60 |
| Current heat loss (3 pole at operating temperature)     |             | W             | 2.7     |
| Lifespan, mechanical                                    | Operations  | $\times 10^6$ | 0.05    |
| Lifespan, electrical (AC-3 at 400 V)                    |             |               |         |
| Lifespan, electrical                                    | Operations  | $\times 10^6$ | 0.05    |
| Max. operating frequency                                |             | Ops/h         | 60      |
| Motor switching capacity                                |             |               |         |
| AC-3 (up to 690V)                                       |             | A             | 12      |

## Trip blocks

|                                    |  |              |                                        |
|------------------------------------|--|--------------|----------------------------------------|
| Temperature compensation           |  |              |                                        |
| to IEC/EN 60947, VDE 0660          |  | °C           | - 5 ... 40                             |
| Operating range                    |  | °C           | - 25 ... 55                            |
| Setting range of overload releases |  | $\times I_u$ | 0.25 - 1                               |
| short-circuit release              |  |              | Basic device, fixed: 15.5 $\times I_u$ |
| Short-circuit release tolerance    |  |              | $\pm 20\%$                             |
| Phase-failure sensitivity          |  |              | IEC/EN 60947-4-1, 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  | 12                                                                                                                               |
| Heat dissipation per pole, current-dependent                                                                           | $P_{vid}$  | W  | 0.9                                                                                                                              |
| Equipment heat dissipation, current-dependent                                                                          | $P_{vid}$  | W  | 2.7                                                                                                                              |
| Static heat dissipation, non-current-dependent                                                                         | $P_{vs}$   | W  | 0                                                                                                                                |
| Heat dissipation capacity                                                                                              | $P_{diss}$ | 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. |
|---------------------------|--|--|----------------------------------------------------------------------------------------------------------|

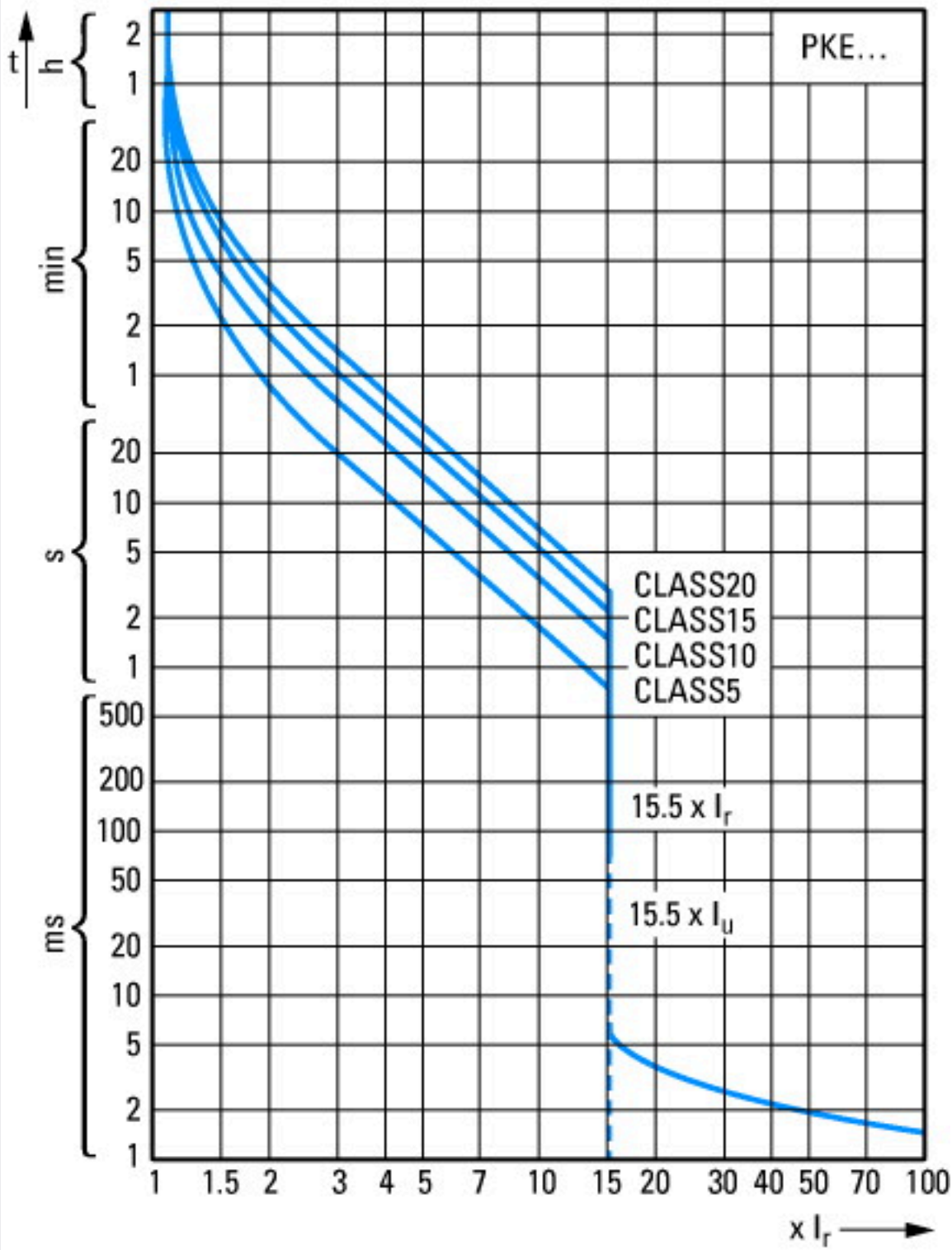
## Technical data ETIM 7.0

|                                                                                                                                                                                                       |  |    |                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----|------------------------------------------|
| 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@ss10.0.1-27-37-04-01 [AGZ529016]) |  |    |                                          |
| Overload release current setting                                                                                                                                                                      |  | A  | 0 - 0                                    |
| Adjustment range undelayed short-circuit release                                                                                                                                                      |  | A  | 0 - 0                                    |
| With thermal protection                                                                                                                                                                               |  |    | No                                       |
| Phase failure sensitive                                                                                                                                                                               |  |    | No                                       |
| Switch off technique                                                                                                                                                                                  |  |    | Electronic                               |
| Rated operating voltage                                                                                                                                                                               |  | V  | 690 - 690                                |
| Rated permanent current I <sub>u</sub>                                                                                                                                                                |  | A  | 12                                       |
| Rated operation power at AC-3, 230 V                                                                                                                                                                  |  | kW | 0                                        |
| Rated operation power at AC-3, 400 V                                                                                                                                                                  |  | kW | 0                                        |
| 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 | 0                                        |
| Degree of protection (IP)                                                                                                                                                                             |  |    | IP20                                     |
| Height                                                                                                                                                                                                |  | mm | 102.5                                    |
| Width                                                                                                                                                                                                 |  | mm | 45                                       |
| Depth                                                                                                                                                                                                 |  | mm | 102.5                                    |

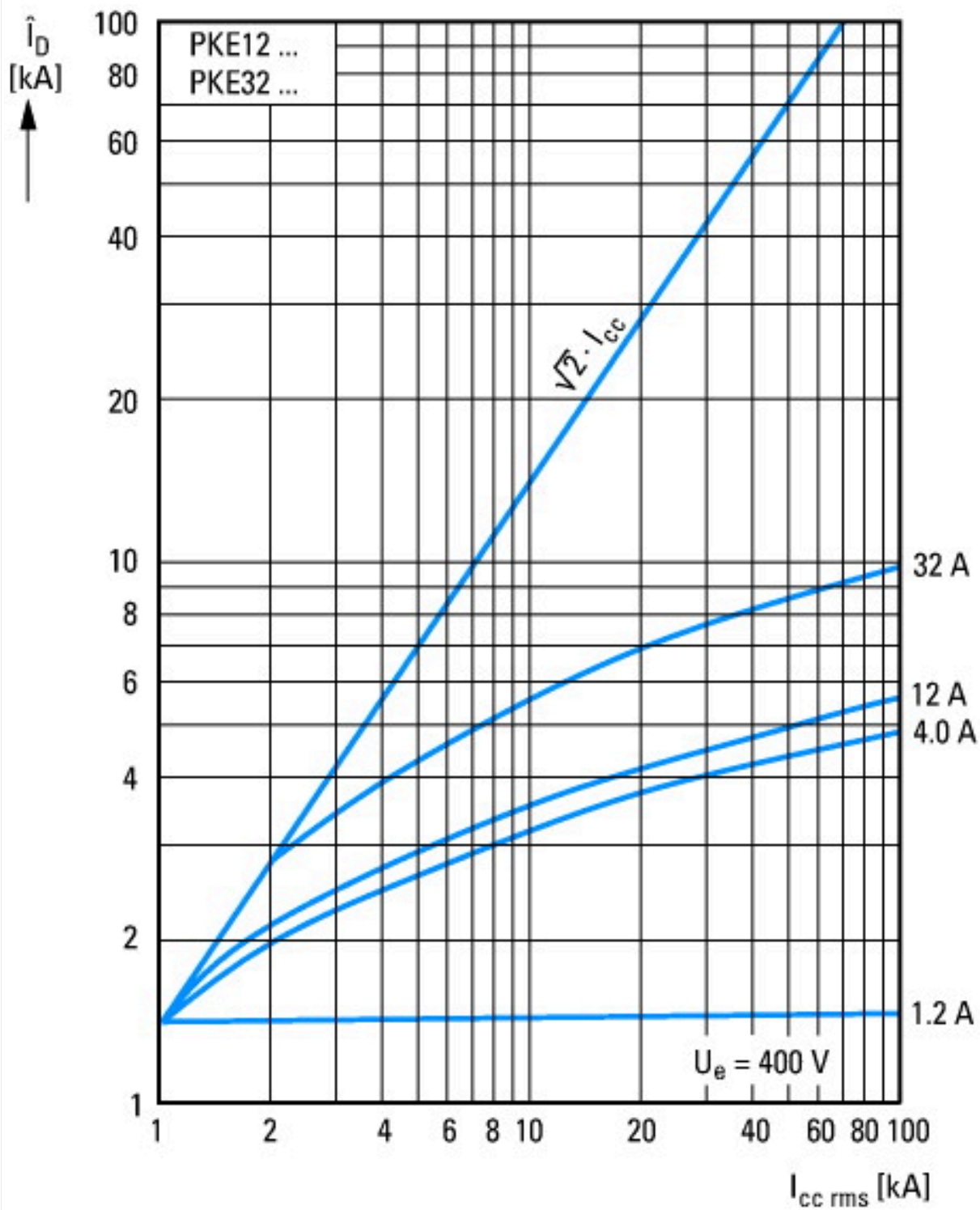
## Approvals

|                                      |  |  |                                                                          |
|--------------------------------------|--|--|--------------------------------------------------------------------------|
| Product Standards                    |  |  | IEC/EN 60947-4-1; UL 60947-4-1; CSA - C22.2 No. 60947-4-1-14; 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                                                                       |

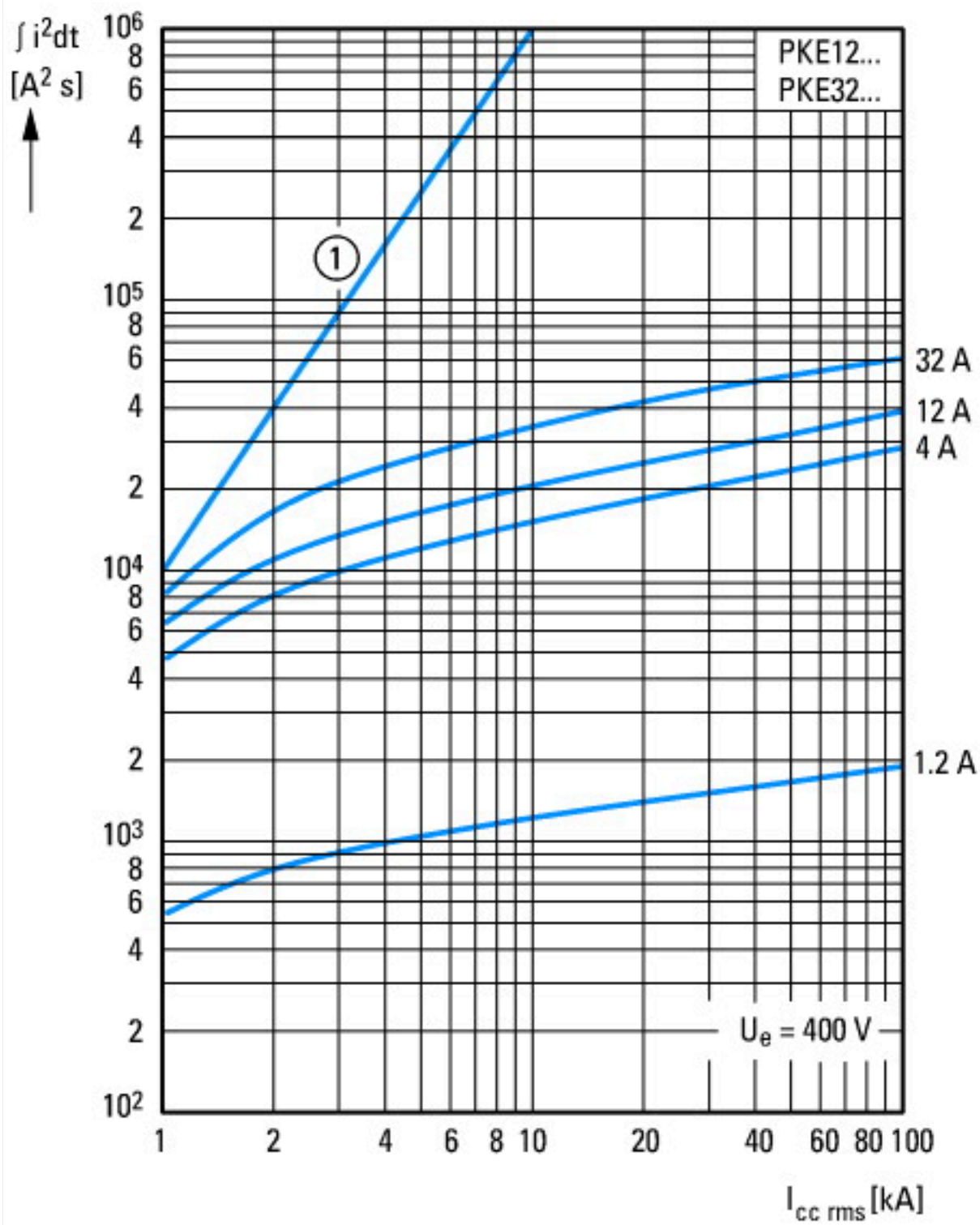
Characteristics



Tripping characteristics

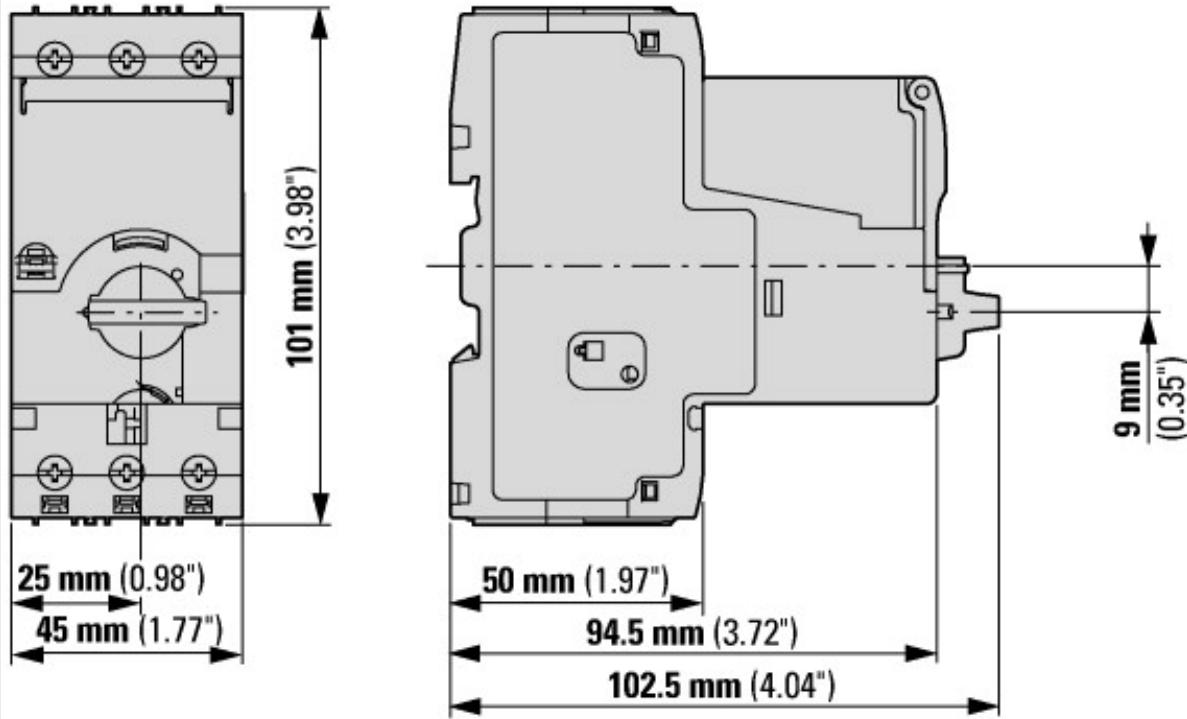


Let-through current



① 1 half-cycle  
Let-through energy

Dimensions



Basic device with trip block

Assets (links)

- Declaration of CE Conformity**  
00002850
- Instruction Leaflets**  
IL03402019Z2018\_03
- Manuals**  
MN03402004Z\_DE\_EN (German)  
MN03402004Z\_DE\_EN (English)

Additional product information (links)

|                                                                                                                       |                                                                                                                                                                                                                 |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IL03402019Z (AWA1210-2490) PKE motor-protective circuit-breaker with wide-range overload protection</b>            |                                                                                                                                                                                                                 |
| IL03402019Z (AWA1210-2490) PKE motor-protective circuit-breaker with wide-range overload protection                   | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402019Z2018_03.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03402019Z2018_03.pdf</a>                                           |
| <b>MN03402004Z PKE12 and PKE32 motor-protective circuit-breakers; overload monitoring of Ex e motors</b>              |                                                                                                                                                                                                                 |
| MN03402004Z PKE12 and PKE32 motor-protective circuit-breakers; overload monitoring of Ex e motors - Deutsch / English | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03402004Z_DE_EN.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWB_MANUALS/MN03402004Z_DE_EN.pdf</a>                                                       |
| Schaltvermögen                                                                                                        | <a href="http://de.ecat.eaton.com/flip-cat/?edition=HPLTEv1&amp;startpage=">http://de.ecat.eaton.com/flip-cat/?edition=HPLTEv1&amp;startpage=</a>                                                               |
| Motor starters and "Special Purpose Ratings" for the North American market                                            | <a href="http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf">http://www.eaton.eu/ecm/groups/public/@pub/@europe/@electrical/documents/content/pct_3258146.pdf</a> |
| Busbar Component Adapters for modern Industrial control panels                                                        | <a href="http://www.moeller.net/binary/ver_techpapers/ver960en.pdf">http://www.moeller.net/binary/ver_techpapers/ver960en.pdf</a>                                                                               |