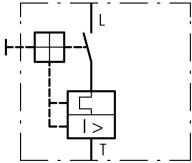
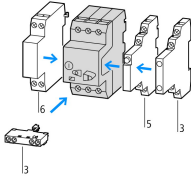




## Motor-protective circuit-breaker, 3p, Ir=2.5-4A

Part no. **PKZM01-4**  
Article no. **278482**  
Catalog No. **XTPB004BC1**

### Delivery programme

|                                                                                                                                                                                                                                                                                                                                                                                                   |          |             |                                                                                                                         |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------|-------------------------------------------------------------------------------------------------------------------------|
| Product range                                                                                                                                                                                                                                                                                                                                                                                     |          |             | PKZM01 motor protective circuit-breakers up to 16 A with pushbutton actuation                                           |
| Basic function                                                                                                                                                                                                                                                                                                                                                                                    |          |             | Motor protection                                                                                                        |
|                                                                                                                                                                                                                                                                                                                                                                                                   |          |             |                                       |
| Notes                                                                                                                                                                                                                                                                                                                                                                                             |          |             | Also suitable for motors with efficiency class IE3.<br>IE3-ready devices are identified by the logo on their packaging. |
| Contact sequence                                                                                                                                                                                                                                                                                                                                                                                  |          |             |                                       |
| <b>Max. motor rating</b>                                                                                                                                                                                                                                                                                                                                                                          |          |             |                                                                                                                         |
| AC-3                                                                                                                                                                                                                                                                                                                                                                                              |          |             |                                                                                                                         |
| 220 V<br>230 V<br>240 V                                                                                                                                                                                                                                                                                                                                                                           | P        | kW          | 0.75                                                                                                                    |
| 380 V<br>400 V<br>415 V                                                                                                                                                                                                                                                                                                                                                                           | P        | kW          | 1.5                                                                                                                     |
| 440 V                                                                                                                                                                                                                                                                                                                                                                                             | P        | kW          | 1.5                                                                                                                     |
| <b>Setting range</b>                                                                                                                                                                                                                                                                                                                                                                              |          |             |                                                                                                                         |
| Overload releases<br>                                                                                                                                                                                                                                                                                          | $I_r$    | A           | 2.5 - 4                                                                                                                 |
| Short-circuit releases<br>                                                                                                                                                                                                                                                                                     |          |             |                                                                                                                         |
| max.                                                                                                                                                                                                                                                                                                                                                                                              | $I_{rm}$ | A           | 62                                                                                                                      |
| Connection technique                                                                                                                                                                                                                                                                                                                                                                              |          |             | Screw terminals                                                                                                         |
| <b>Notes</b><br> <p><b>Accessory</b><br/> 3 Standard auxiliary contact<br/> 5 Trip-indicating auxiliary contact<br/> 6 Shunt release, undervoltage release<br/> phase failure sensitivity to IEC/EN 60947-4-1, VDE 0660 part 102.<br/> Can be snap-fitted to IEC/EN 60715 DIN-rail with 7.5 or 15 mm height</p> |          |             |                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                   |          | <b>Page</b> |                                                                                                                         |
|                                                                                                                                                                                                                                                                                                                                                                                                   |          | →           | 072896                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |          | →           | 072898                                                                                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                   |          | →           | 073187                                                                                                                  |

### Technical data

|                     |   |    |                                                                                |
|---------------------|---|----|--------------------------------------------------------------------------------|
| <b>General</b>      |   |    |                                                                                |
| Standards           |   |    | IEC/EN 60947, VDE 0660                                                         |
| Climatic proofing   |   |    | Damp heat, constant, to IEC 60068-2-78<br>Damp heat, cyclic, to IEC 60068-2-30 |
| Ambient temperature |   | °C |                                                                                |
| 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               | 25                                                                                |
| Altitude                                                                  |  | m               | 2000                                                                              |
| Terminal capacity screw terminals                                         |  | mm <sup>2</sup> |                                                                                   |
| 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             | 18 - 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 <sub>imp</sub>                | V AC              | 6000                                             |
| Overvoltage category/pollution degree                   |                                 |                   | III/3                                            |
| Rated operational voltage                               | U <sub>e</sub>                  | V AC              | 690                                              |
| Rated uninterrupted current = rated operational current | I <sub>u</sub> = I <sub>e</sub> | A                 | 16 or current setting of the overcurrent release |
| Rated frequency                                         | f                               | Hz                | 40 - 60                                          |
| Rated frequency                                         |                                 | Hz                | 40 - 60                                          |
| Current heat loss (3 pole at operating temperature)     |                                 | W                 | 6                                                |
| Lifespan, mechanical                                    | Operations                      | x 10 <sup>6</sup> | 0.05                                             |
| Lifespan, electrical (AC-3 at 400 V)                    | Operations                      | x 10 <sup>6</sup> | 0.05                                             |
| Maximum operating frequency                             |                                 | Ops/h             |                                                  |
| Max. operating frequency                                |                                 | Ops/h             | 25                                               |
| Short-circuit rating                                    |                                 |                   |                                                  |
| DC                                                      |                                 |                   |                                                  |
| Short-circuit rating                                    |                                 | kA                | 60                                               |
| Short-circuit rating                                    |                                 |                   | 60                                               |
| Motor switching capacity                                |                                 | kA <sub>rms</sub> |                                                  |
| AC-3 (up to 690 V)                                      |                                 | A                 | 16                                               |
| DC-5 (up to 250 V)                                      |                                 | A                 | 16 (3 contacts in series)                        |

## Trip blocks

|                                                       |  |                  |                                            |
|-------------------------------------------------------|--|------------------|--------------------------------------------|
| Temperature compensation                              |  |                  |                                            |
| to IEC/EN 60947, VDE 0660                             |  | °C               | - 5 ... 40                                 |
| Operating range                                       |  | °C               | - 25 ... 55                                |
| Temperature compensation residual error for T > 40 °C |  |                  | ≦ 0.25 %/K                                 |
| Setting range of overload releases                    |  | x I <sub>u</sub> | 0.6 - 1                                    |
| Short-circuit release fixed                           |  | x I <sub>u</sub> | 15                                         |
| short-circuit release                                 |  |                  | Basic device, fixed: 15.5 x I <sub>u</sub> |
| 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 <sub>n</sub>   | A | 4    |
| Heat dissipation per pole, current-dependent             | P <sub>vid</sub> | W | 0    |
| Equipment heat dissipation, current-dependent            | P <sub>vid</sub> | W | 5.33 |

|                                                                                                                        |                   |    |                                                                                                                                  |
|------------------------------------------------------------------------------------------------------------------------|-------------------|----|----------------------------------------------------------------------------------------------------------------------------------|
| Static heat dissipation, non-current-dependent                                                                         | P <sub>vs</sub>   | 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

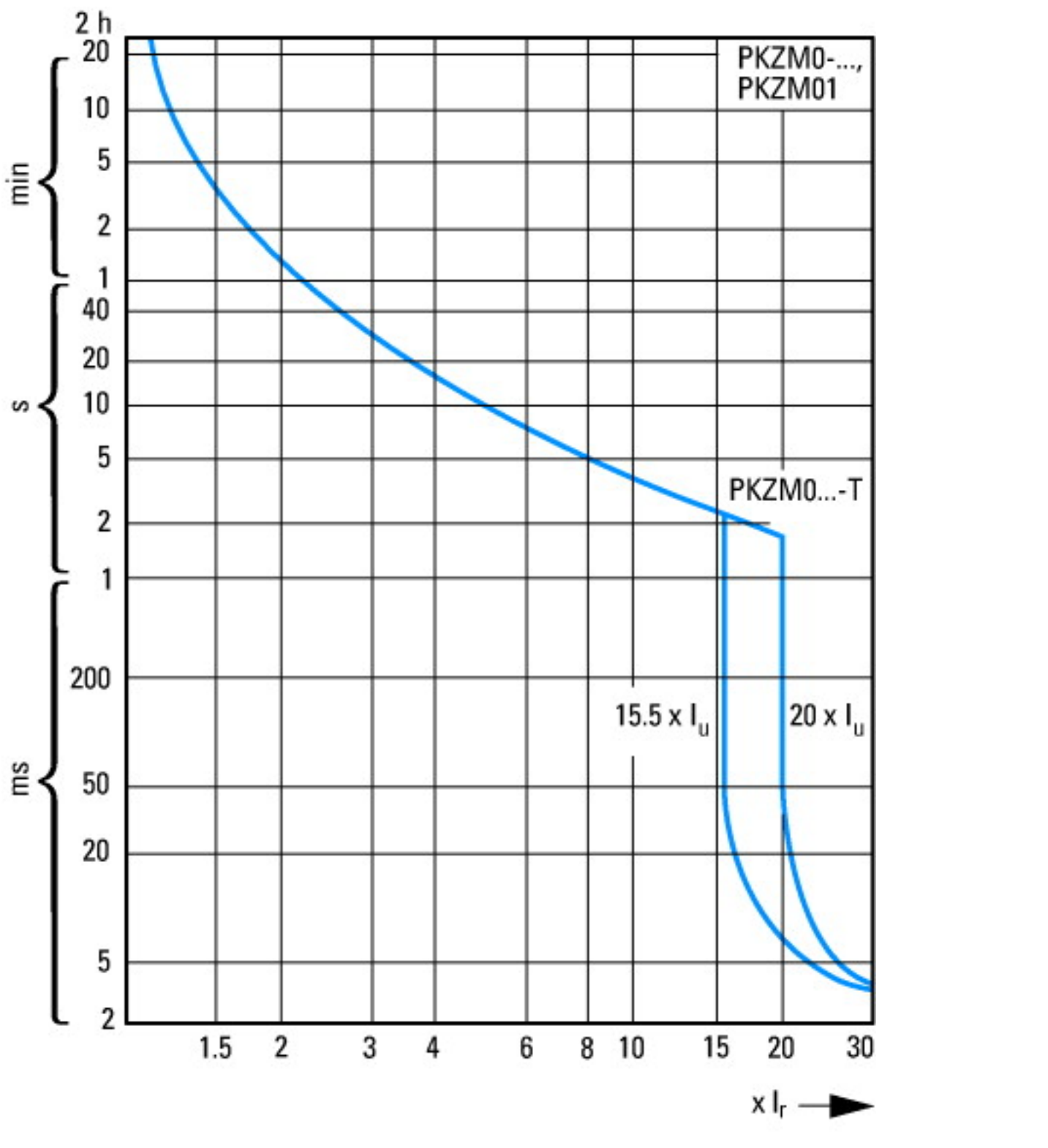
|                                                                                                                                                                                                    |    |  |                                          |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|--|------------------------------------------|
| 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  |  | 2.5 - 4                                  |
| Adjustment range undelayed short-circuit release                                                                                                                                                   | A  |  | 62 - 62                                  |
| 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  |  | 4                                        |
| Rated operation power at AC-3, 230 V                                                                                                                                                               | kW |  | 0.75                                     |
| Rated operation power at AC-3, 400 V                                                                                                                                                               | kW |  | 1.5                                      |
| Type of electrical connection of main circuit                                                                                                                                                      |    |  | Screw connection                         |
| Type of control element                                                                                                                                                                            |    |  | Push 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 |  | 93                                       |
| Width                                                                                                                                                                                              | mm |  | 45                                       |

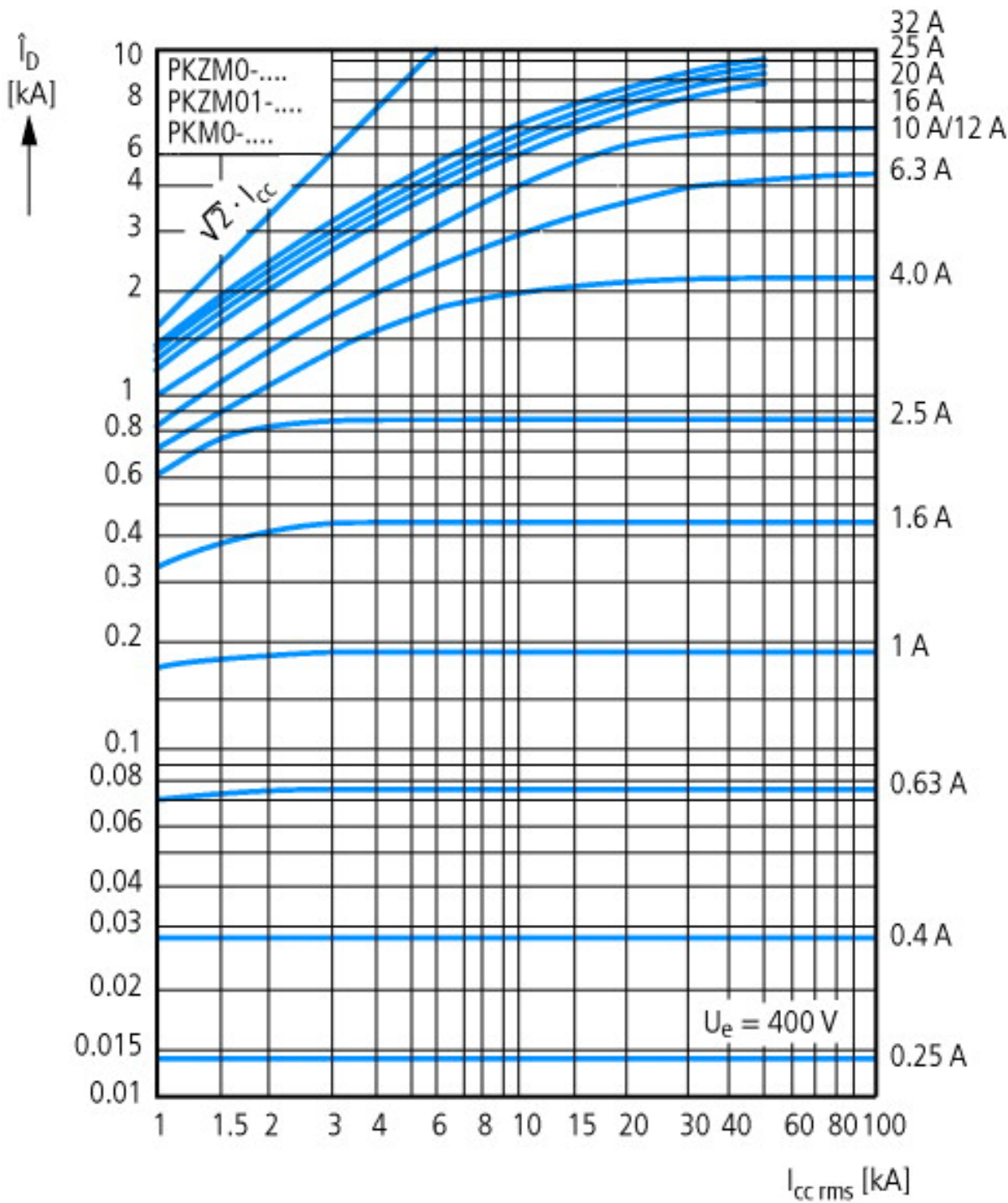
|       |    |      |
|-------|----|------|
| Depth | mm | 90.5 |
|-------|----|------|

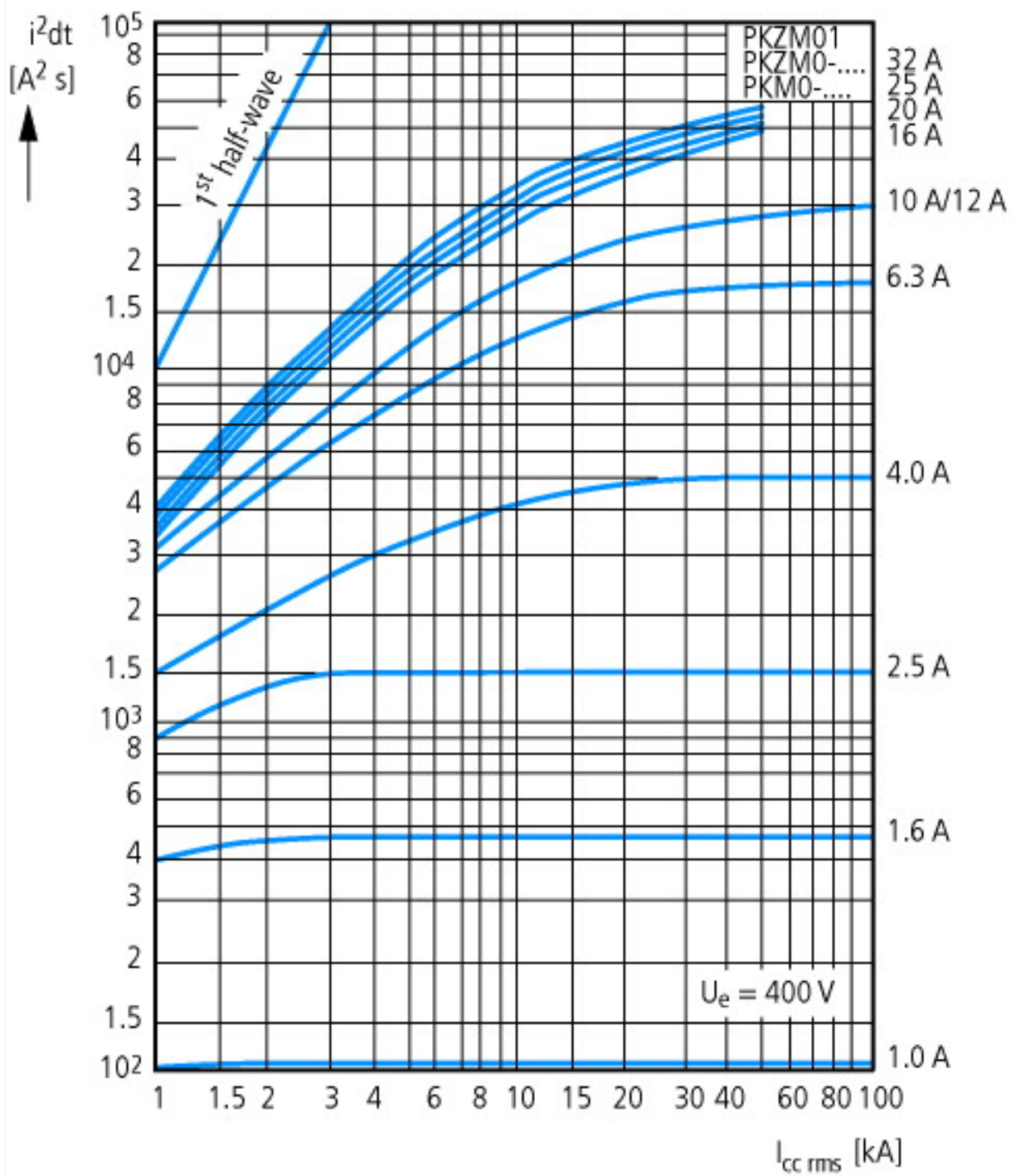
Approvals

|                                      |                                                                                          |
|--------------------------------------|------------------------------------------------------------------------------------------|
| 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

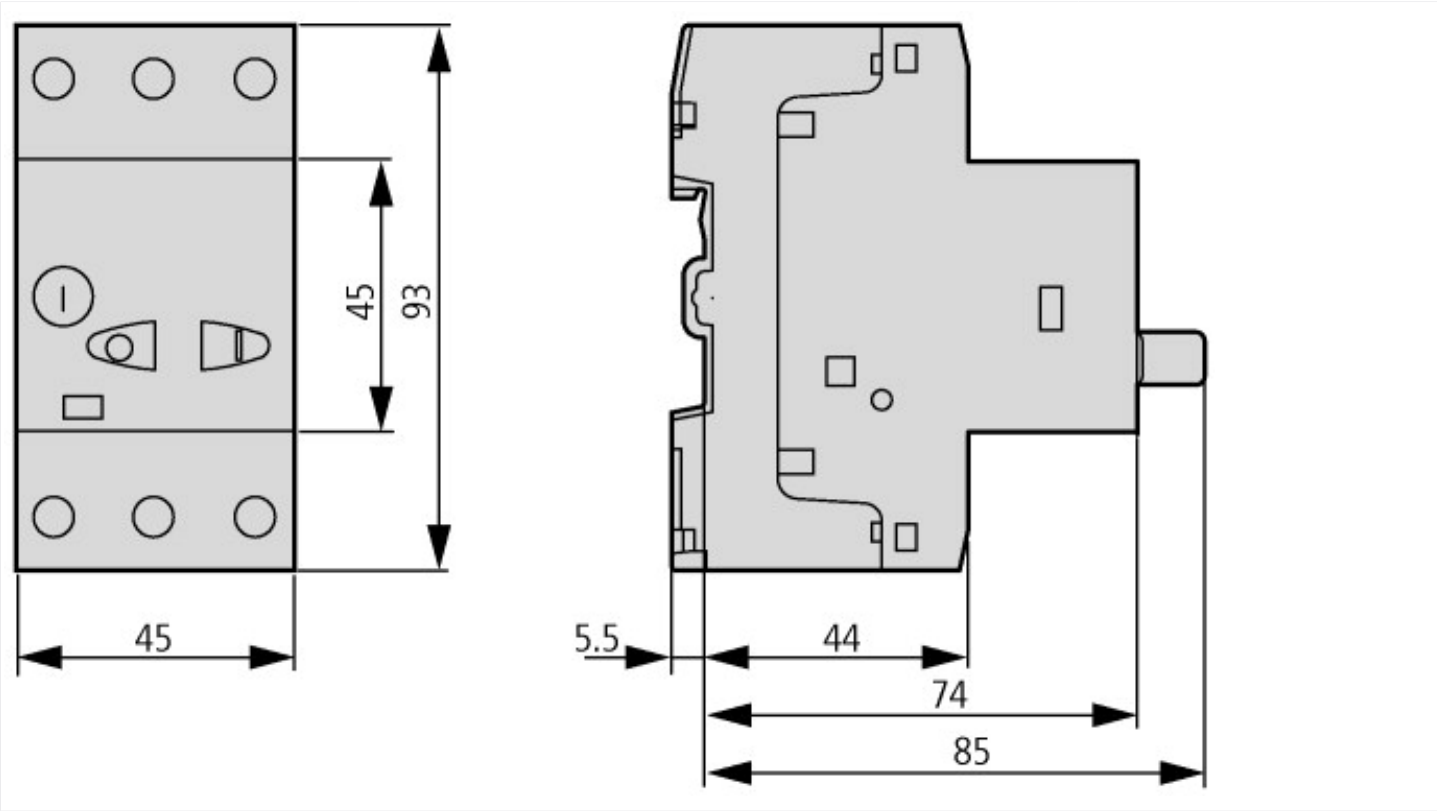






Let-through characteristics

Dimensions



Additional product information (links)

|                                                                            |                                                                                                                                                                       |
|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>IL03407010Z (AWA1210-2138) Motor-protective circuit-breaker</b>         |                                                                                                                                                                       |
| IL03407010Z (AWA1210-2138) Motor-protective circuit-breaker                | <a href="ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407010Z2014_02.pdf">ftp://ftp.moeller.net/DOCUMENTATION/AWA_INSTRUCTIONS/IL03407010Z2014_02.pdf</a> |
| Motor starters and "Special Purpose Ratings" for the North American market | <a href="http://www.moeller.net/binary/ver_techpapers/ver953en.pdf">http://www.moeller.net/binary/ver_techpapers/ver953en.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>                                     |