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XT Family of Contactors

Contactors and Starters

Product Description

Eaton's new line of **XT** Contactors and Starters includes non-reversing and reversing contactors, overload relays and a variety of related accessories. Because **XT** meets IEC, UL, CSA, CCC and CE standards, it is the perfect product solution for IEC applications all over the world. The compact, space saving, and easy to install **XT** line of IEC contactors and starters is the efficient and effective solution for customer applications from 7A to 2000A.

Features and Benefits

- AC control from 12V to 600V 50/60 Hz
- DC control from 12V to 220V
- Available with screw or spring cage terminals
- Reversing or non-reversing contactors and starters
- AC-3 contactor ratings to 1000A and AC-1 contactor ratings to 2000A
- Non-reversing starters to 650A
- Panel or DIN rail mounting to 65A
- IP20 finger and back-of-hand proof
- Large ambient temperature range, -25 to 50°C [-13 to 122°F]
- AC and DC controlled contactors in the same compact frame
- Low power consumption DC coils
- Built-in NO or NC auxiliary contacts to 32A
- Plug-in accessories for reduced installation time
- Coil replacement on Frames C – N (18 – 820A)
- Contact replacement on Frames D – N (40 – 820A)
- Integrated suppressor 7 – 150A DC operated contactors and 185 – 2000A AC and DC operated contactors

Standards and Certifications

- IEC EN 60947
- CE Approved
- UL
- CSA
- CCC
- ATEX
- RoHS



Note: For Type 2 Coordination, see Page B-162.

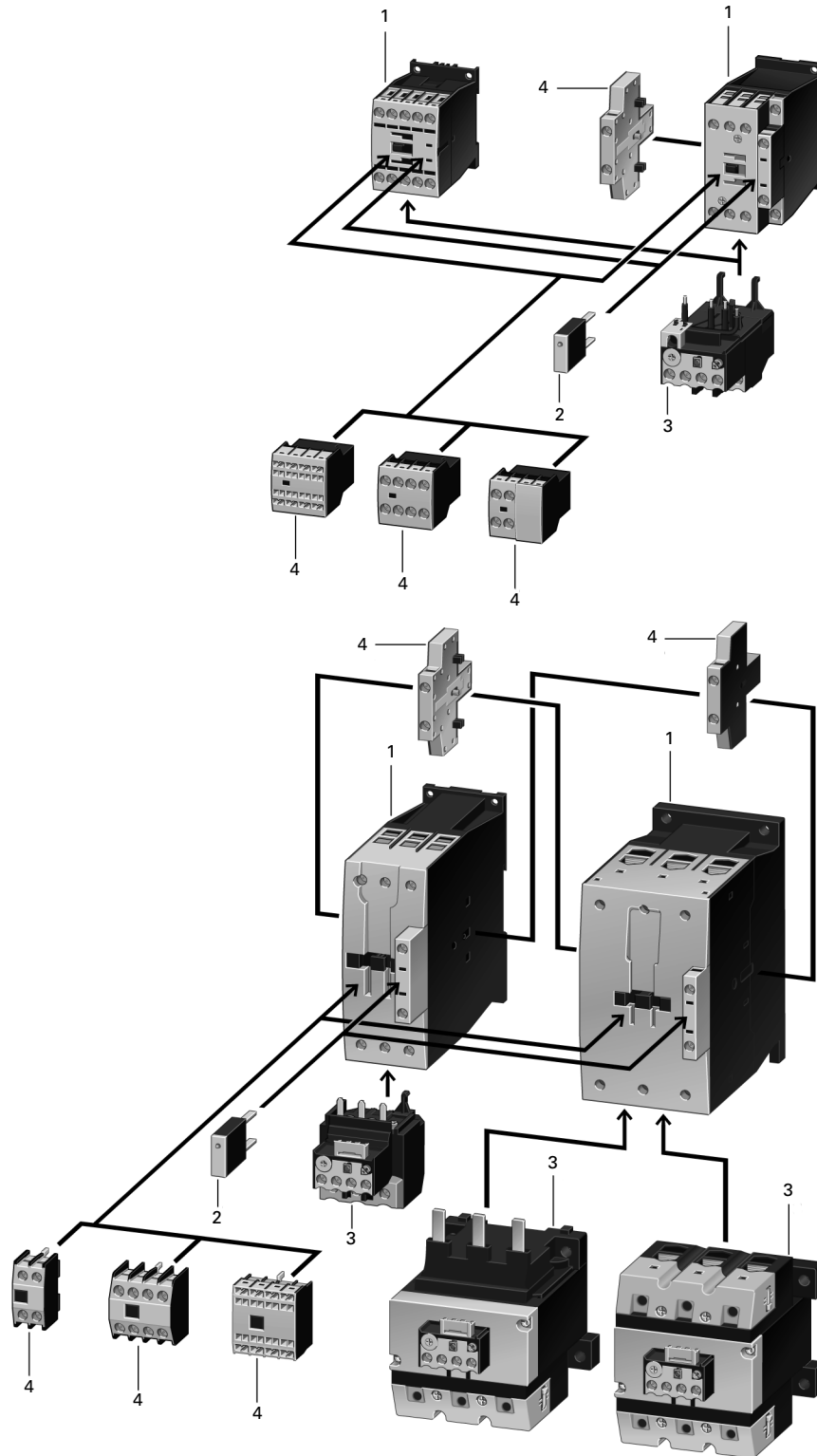


Table B-46. Product Identification

| No. | Description | Page |
|----------------------------------|---|------|
| Contactor Up to 150A AC-3 | | |
| 1 | AC: ■ 12 – 600V, 50, 60, 50/60 Hz ■ $0.8 - 1.1 \times U_c$ DC: ■ 12 – 250V ■ XTCE...B_ (7 – 15A): $0.8 - 1.1 \times U_c$ ■ XTCE...C_ – XTCE...G_ (18 – 150A): $0.7 - 1.2 \times U_c$ ■ 24V: $0.7 - 1.3 \times U_c$ at 40°C without additional auxiliary contacts Coils for Special Voltages “Safe Isolation” to IEC 536 between coil and contacts | B-34 |
| Suppressors | | |
| 2 | ■ RC suppressor ■ Varistor suppressor ■ Free-wheel diode suppressor | B-52 |
| Overload Relays | | |
| 3 | ■ Can be mounted directly ■ Separate mounting, possible ■ Protection of EEx e motors | B-93 |
| Auxiliary Contact Modules | | |
| 4 | ■ 2-pole, plug-in type ■ 4-pole, plug-in type ■ Overlapping contacts ■ 2-pole, side mounting | B-47 |

B

B

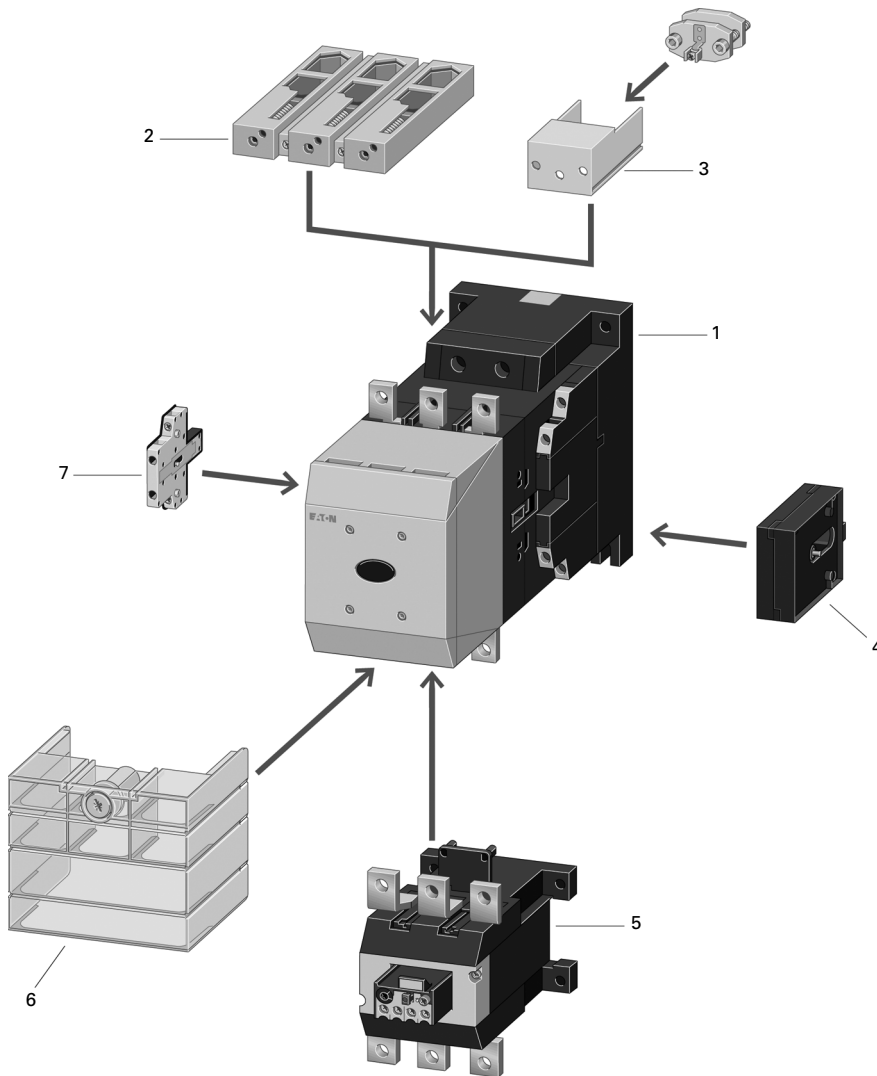


Table B-47. XTCE185 – XTCEC20 Contactors

| No. | Description | Page |
|---|--|-------------|
| XTCE Contactors for 185 – 2000A (AC-3) | | |
| 1 | Multi-Voltage Coils: ■ 24 – 48V DC ■ 48 – 110V AC/DC ■ 110 – 250V AC/DC ■ 250 – 500V AC ■ $0.7 - 1.15 \times U_c$ Actuation Options: ■ Directly ■ From the PLC ■ With low-consumption contact Minimized pick-up and sealing power. | B-34 |
| XTCS Contactors for 185 – 500A (AC-3) | | |
| 1 | Control Voltages: ■ 110 – 120V 50/60 Hz ■ 220 – 240V 50/60 Hz Conventional operation. | B-35 |
| Cable Terminal Block | | |
| 2 | ■ 1 or 2 conductors per phase ■ Round and flat conductor connectable ■ Finger-proof | B-56 |
| Flat Strip Conductor Terminals | | |
| 3 | ■ 1 or 2 strips per phase ■ Control circuit terminal ■ Cover for fingerproofing | B-56 |
| Mechanical Interlock | | |
| 4 | ■ Fits between contactors | B-54 |
| Overload Relays | | |
| 5 | ■ Can be mounted directly ■ Separate mounting, possible ■ Protection of EEx e motors ■ PTB certificate | B-93 |
| Terminal Shroud | | |
| 6 | ■ Finger-proof | B-56 |
| Auxiliary Contact Modules | | |
| 7 | ■ 2-pole, side mounting | B-47 |

Catalogue Number Selection

Table B-48. XTIEC Contactors & Starters — Catalogue Numbering System

| XT CE C 007 B 01 AD P16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|--|--|--|-------------|---|------------|---|----|----|----------------|-------|----------------|--|--|--|--------------------|-------|-------|-------|--------------------|-------|-------|-------|----------------|-------|-------|-------|------------------|-------|-------|-------|------------------|-------|-------|-------|----------------|--|--|--|--------------------|-------|-------|-------|--------------------|-------|-------|-------|----------------|-------|-------|-------|------------------|-------|-------|-------|-------------------|-------|-------|-------|----------------|--|--|--|------------------|-------|-------|-------|-------------------|-------|-------|-------|-----------------|-------|-------|-------|------------------|-------|-------|-------|----------------|--|--|--|-------------------|-------|-------|-------|----------------|--|--|--|---------------|---|-------|-------|
| <p>Designation XT = XT Line of IEC Control</p> | | <p>XTAE, XTAS and XTAR Starters Only — Maximum Overload Relay</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Type</p> <p>CE = 3-Pole FVNR IEC Contactor CS = 3-Pole FVNR S Series IEC Contactor CF = 4-Pole FVNR IEC Contactor CR = 3-Pole FVR IEC Contactor CC = IEC Capacitor Contactor AE = FVNR IEC Starter AS = FVNR S-Series IEC Starter AR = FVR IEC Starter</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Terminations</p> <p>Blank = Screw Terminals (6 – 65A); 5 mm (80 – 150A); No Lugs (185 – 2000A) C = Spring Cage Terminals (6 – 32A); Spring Cage Coil Terminals Only (185 – 500A)</p> | | <p>XTOB Maximum Overload Rating</p> <table border="1"> <tr> <td> <p><i>Frame B</i></p> <p>P16 = 0.1 – 0.16A P24 = 0.16 – 0.24A P40 = 0.24 – 0.4A P60 = 0.4 – 0.6A 001 = 0.6 – 1A 1P6 = 1.0 – 1.6A 2P4 = 1.6 – 2.4A 004 = 2.4 – 4A 006 = 4 – 6A 010 = 6 – 10A 012 = 9 – 12A 016 = 12 – 16A</p> </td> <td> <p><i>Frame D</i></p> <p>010 = 6 – 10A 016 = 10 – 16A 024 = 16 – 24A 040 = 24 – 40A 057 = 40 – 57A 065 = 50 – 65A</p> </td> </tr> <tr> <td> <p><i>Frame C</i></p> <p>P16 = 0.1 – 0.16A P24 = 0.16 – 0.24A P40 = 0.24 – 0.4A P60 = 0.4 – 0.6A 001 = 0.6 – 1A 1P6 = 1.0 – 1.6A 2P4 = 1.6 – 2.4A 004 = 2.4 – 4A 006 = 4 – 6A 010 = 6 – 10A 016 = 10 – 16A 024 = 16 – 24A 032 = 24 – 32A</p> </td> <td> <p><i>Frame F</i></p> <p>035 = 25 – 35A 050 = 35 – 50A 070 = 50 – 70A 100 = 70 – 100A</p> </td> </tr> <tr> <td></td> <td> <p><i>Frame G</i></p> <p>035 = 25 – 35A 050 = 35 – 50A 070 = 50 – 70A 100 = 70 – 100A 125 = 95 – 125A 150 = 120 – 150A</p> </td> </tr> <tr> <td></td> <td> <p><i>Frame L</i></p> <p>070 = 50 – 70A 100 = 70 – 100A 125 = 95 – 125A 160 = 120 – 160A 220 = 160 – 220A 250 = 200 – 250A</p> </td> </tr> </table> | <p><i>Frame B</i></p> <p>P16 = 0.1 – 0.16A P24 = 0.16 – 0.24A P40 = 0.24 – 0.4A P60 = 0.4 – 0.6A 001 = 0.6 – 1A 1P6 = 1.0 – 1.6A 2P4 = 1.6 – 2.4A 004 = 2.4 – 4A 006 = 4 – 6A 010 = 6 – 10A 012 = 9 – 12A 016 = 12 – 16A</p> | <p><i>Frame D</i></p> <p>010 = 6 – 10A 016 = 10 – 16A 024 = 16 – 24A 040 = 24 – 40A 057 = 40 – 57A 065 = 50 – 65A</p> | <p><i>Frame C</i></p> <p>P16 = 0.1 – 0.16A P24 = 0.16 – 0.24A P40 = 0.24 – 0.4A P60 = 0.4 – 0.6A 001 = 0.6 – 1A 1P6 = 1.0 – 1.6A 2P4 = 1.6 – 2.4A 004 = 2.4 – 4A 006 = 4 – 6A 010 = 6 – 10A 016 = 10 – 16A 024 = 16 – 24A 032 = 24 – 32A</p> | <p><i>Frame F</i></p> <p>035 = 25 – 35A 050 = 35 – 50A 070 = 50 – 70A 100 = 70 – 100A</p> | | <p><i>Frame G</i></p> <p>035 = 25 – 35A 050 = 35 – 50A 070 = 50 – 70A 100 = 70 – 100A 125 = 95 – 125A 150 = 120 – 150A</p> | | <p><i>Frame L</i></p> <p>070 = 50 – 70A 100 = 70 – 100A 125 = 95 – 125A 160 = 120 – 160A 220 = 160 – 220A 250 = 200 – 250A</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| | <p><i>Frame L</i></p> <p>070 = 50 – 70A 100 = 70 – 100A 125 = 95 – 125A 160 = 120 – 160A 220 = 160 – 220A 250 = 200 – 250A</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Current Ratings, AC-3</p> <p>007 = 7A 009 = 9A 012 = 12A 015 = 15A 018 = 18A 025 = 25A 032 = 32A 040 = 40A 050 = 50A 065 = 65A 080 = 80A 095 = 95A 115 = 115A 150 = 150A 185 = 185A 225 = 225A 250 = 250A 300 = 300A 400 = 400A 500 = 500A 580 = 580A 650 = 650A 750 = 750A 820 = 820A C10 = 1000A C14 = 1400A, AC-1 C16 = 1600A, AC-3 C20 = 2000A, AC-1</p> | <p>Frame Size Designation</p> <p>B = 45 mm C = 45 mm D = 55 mm F = 90 mm G = 90 mm L = 140 mm M = 160 mm N = 250 mm P = 260 mm R = 515 mm</p> | <p>Built-In Auxiliary Contact</p> <p>01 = 1NC 10 = 1NO 00 = 0NO-0NC 22 = 2NO-2NC</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <p>C396 Maximum Overload Rating</p> <table border="1"> <tr> <th colspan="4">Suffix by Feature Set</th> </tr> <tr> <th>Econ. Class</th> <th>Econ. Class</th> <th>Std. Class</th> <th>Adv. Class</th> </tr> <tr> <td>10</td> <td>20</td> <td>5/10/ 20/30</td> <td>10/20</td> </tr> <tr> <td colspan="4"><i>Frame B</i></td> </tr> <tr> <td>0.1 – 0.5A = 1EP05</td> <td>2EP05</td> <td>3EP05</td> <td>4EP05</td> </tr> <tr> <td>0.4 – 2.0A = 1E002</td> <td>2E002</td> <td>3E002</td> <td>4E002</td> </tr> <tr> <td>1 – 5A = 1E005</td> <td>2E005</td> <td>3E005</td> <td>4E005</td> </tr> <tr> <td>1.6 – 8A = 1E008</td> <td>2E008</td> <td>3E008</td> <td>4E008</td> </tr> <tr> <td>6.4 – 32 = 1E032</td> <td>2E032</td> <td>3E032</td> <td>4E032</td> </tr> <tr> <td colspan="4"><i>Frame C</i></td> </tr> <tr> <td>0.1 – 0.5A = 1EP05</td> <td>2EP05</td> <td>3EP05</td> <td>4EP05</td> </tr> <tr> <td>0.4 – 2.0A = 1E002</td> <td>2E002</td> <td>3E002</td> <td>4E002</td> </tr> <tr> <td>1 – 5A = 1E005</td> <td>2E005</td> <td>3E005</td> <td>4E005</td> </tr> <tr> <td>1.6 – 8A = 1E008</td> <td>2E008</td> <td>3E008</td> <td>4E008</td> </tr> <tr> <td>6.4 – 32A = 1E032</td> <td>2E032</td> <td>3E032</td> <td>4E032</td> </tr> <tr> <td colspan="4"><i>Frame D</i></td> </tr> <tr> <td>1.6 – 8A = 1E008</td> <td>2E008</td> <td>3E008</td> <td>4E008</td> </tr> <tr> <td>6.4 – 32A = 1E032</td> <td>2E032</td> <td>3E032</td> <td>4E032</td> </tr> <tr> <td>9 – 45A = 1E045</td> <td>2E045</td> <td>3E045</td> <td>4E045</td> </tr> <tr> <td>15 – 75A = 1E075</td> <td>2E075</td> <td>3E075</td> <td>4E075</td> </tr> <tr> <td colspan="4"><i>Frame F</i></td> </tr> <tr> <td>22 – 110A = 1E110</td> <td>2E110</td> <td>3E110</td> <td>4E110</td> </tr> <tr> <td colspan="4"><i>Frame G</i></td> </tr> <tr> <td>30 – 150A = —</td> <td>—</td> <td>3E150</td> <td>4E150</td> </tr> </table> | Suffix by Feature Set | | | | Econ. Class | Econ. Class | Std. Class | Adv. Class | 10 | 20 | 5/10/ 20/30 | 10/20 | <i>Frame B</i> | | | | 0.1 – 0.5A = 1EP05 | 2EP05 | 3EP05 | 4EP05 | 0.4 – 2.0A = 1E002 | 2E002 | 3E002 | 4E002 | 1 – 5A = 1E005 | 2E005 | 3E005 | 4E005 | 1.6 – 8A = 1E008 | 2E008 | 3E008 | 4E008 | 6.4 – 32 = 1E032 | 2E032 | 3E032 | 4E032 | <i>Frame C</i> | | | | 0.1 – 0.5A = 1EP05 | 2EP05 | 3EP05 | 4EP05 | 0.4 – 2.0A = 1E002 | 2E002 | 3E002 | 4E002 | 1 – 5A = 1E005 | 2E005 | 3E005 | 4E005 | 1.6 – 8A = 1E008 | 2E008 | 3E008 | 4E008 | 6.4 – 32A = 1E032 | 2E032 | 3E032 | 4E032 | <i>Frame D</i> | | | | 1.6 – 8A = 1E008 | 2E008 | 3E008 | 4E008 | 6.4 – 32A = 1E032 | 2E032 | 3E032 | 4E032 | 9 – 45A = 1E045 | 2E045 | 3E045 | 4E045 | 15 – 75A = 1E075 | 2E075 | 3E075 | 4E075 | <i>Frame F</i> | | | | 22 – 110A = 1E110 | 2E110 | 3E110 | 4E110 | <i>Frame G</i> | | | | 30 – 150A = — | — | 3E150 | 4E150 |
| Suffix by Feature Set | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Econ. Class | Econ. Class | Std. Class | Adv. Class | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 20 | 5/10/ 20/30 | 10/20 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame B</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.1 – 0.5A = 1EP05 | 2EP05 | 3EP05 | 4EP05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.4 – 2.0A = 1E002 | 2E002 | 3E002 | 4E002 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 – 5A = 1E005 | 2E005 | 3E005 | 4E005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.6 – 8A = 1E008 | 2E008 | 3E008 | 4E008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.4 – 32 = 1E032 | 2E032 | 3E032 | 4E032 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame C</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.1 – 0.5A = 1EP05 | 2EP05 | 3EP05 | 4EP05 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0.4 – 2.0A = 1E002 | 2E002 | 3E002 | 4E002 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 – 5A = 1E005 | 2E005 | 3E005 | 4E005 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.6 – 8A = 1E008 | 2E008 | 3E008 | 4E008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.4 – 32A = 1E032 | 2E032 | 3E032 | 4E032 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame D</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1.6 – 8A = 1E008 | 2E008 | 3E008 | 4E008 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.4 – 32A = 1E032 | 2E032 | 3E032 | 4E032 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 – 45A = 1E045 | 2E045 | 3E045 | 4E045 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 – 75A = 1E075 | 2E075 | 3E075 | 4E075 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame F</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 – 110A = 1E110 | 2E110 | 3E110 | 4E110 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame G</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 – 150A = — | — | 3E150 | 4E150 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <p>Coil Codes See Table B-57.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

B

Contactors and Starters

Product Selection
Non-reversing Contactors

B



Frame B



Frame C



Frame D



Frame F – G

Table B-49. Full Voltage Non-reversing 3-Pole Contactors, Frame B – Frame G

| I _e (A) | I _e = I _{th} (A) | Maximum kW Ratings AC-3 | | | | Maximum 3-Phase Motor Rating, UL/CSA | | | | | | | Aux. Contacts | Catalogue Number — Screw Terminals ①② | Price | | |
|--------------------|--------------------------------------|---------------------------|----------|------|----------|--------------------------------------|-------|-------|--------------------|-------|-----------------|-------|---------------|---------------------------------------|---------|---------|--|
| | | 3-Phase Motors 50 – 60 Hz | | | | 1-Phase hp Ratings | | | 3-Phase hp Ratings | | | | | | AC Coil | DC Coil | |
| AC-3 | AC-1 (60°C) | 220/230V | 380/400V | 415V | 660/690V | 115V | 200V | 230V | 200V | 230V | 460V | 575V | | | | | |
| Frame B | | | | | | | | | | | | | | | | | |
| 7 | 20 | 2.2 | 3 | 4 | 3.5 | 1/4 | 3/4 | 1 | 1-1/2 | 2 | 3 | 5 | 1NO | XTCE007B10_ | | | |
| 7 | 20 | 2.2 | 3 | 4 | 3.5 | 1/4 | 3/4 | 1 | 1-1/2 | 2 | 3 | 5 | 1NC | XTCE007B01_ | | | |
| 9 | 20 | 2.5 | 4 | 5.5 | 4.5 | 1/2 | 1 | 1-1/2 | 3 | 3 | 5 | 7-1/2 | 1NO | XTCE009B10_ | | | |
| 9 | 20 | 2.5 | 4 | 5.5 | 4.5 | 1/2 | 1 | 1-1/2 | 3 | 3 | 5 | 7-1/2 | 1NC | XTCE009B01_ | | | |
| 12 | 20 | 3.5 | 5.5 | 7 | 6.5 | 1 | 2 | 2 | 3 | 3 | 10 ^③ | 10 | 1NO | XTCE012B10_ | | | |
| 12 | 20 | 3.5 | 5.5 | 7 | 6.5 | 1 | 2 | 2 | 3 | 3 | 10 ^③ | 10 | 1NC | XTCE012B01_ | | | |
| 15.5 | 20 | 4 | 7.5 | 8 | 7 | 1 | 2 | 3 | 5 | 5 | 10 ^③ | 10 | 1NO | XTCE015B10_ | | | |
| 15.5 | 20 | 4 | 7.5 | 8 | 7 | 1 | 2 | 3 | 5 | 5 | 10 ^③ | 10 | 1NC | XTCE015B01_ | | | |
| Frame C | | | | | | | | | | | | | | | | | |
| 18 | 35 | 5 | 7.5 | 10 | 11 | 2 | 2 | 3 | 5 | 5 | 10 ^③ | 15 | 1NO | XTCE018C10_ | | | |
| 18 | 35 | 5 | 7.5 | 10 | 11 | 2 | 2 | 3 | 5 | 5 | 10 ^③ | 15 | 1NC | XTCE018C01_ | | | |
| 25 | 40 | 7.5 | 11 | 14.5 | 14 | 2 | 3 | 5 | 7-1/2 | 7-1/2 | 15 | 20 | 1NO | XTCE025C10_ | | | |
| 25 | 40 | 7.5 | 11 | 14.5 | 14 | 2 | 3 | 5 | 7-1/2 | 7-1/2 | 15 | 20 | 1NC | XTCE025C01_ | | | |
| 32 | 40 | 10 | 15 | 18 | 17 | 3 | 5 | 5 | 10 | 10 | 20 | 25 | 1NO | XTCE032C10_ | | | |
| 32 | 40 | 10 | 15 | 18 | 17 | 3 | 5 | 5 | 10 | 10 | 20 | 25 | 1NC | XTCE032C01_ | | | |
| Frame D | | | | | | | | | | | | | | | | | |
| 40 | 50 | 12.5 | 18.5 | 24 | 23 | 3 | 5 | 7-1/2 | 10 | 15 | 30 | 40 | — | XTCE040D00_ | | | |
| 50 | 65 | 15.5 | 22 | 30 | 30 | 3 | 7-1/2 | 10 | 15 | 20 | 40 | 50 | — | XTCE050D00_ | | | |
| 65 | 80 | 20 | 30 | 39 | 35 | 5 | 10 | 15 | 20 | 25 | 50 | 60 | — | XTCE065D00_ | | | |
| Frame F | | | | | | | | | | | | | | | | | |
| 80 | 90 | 25 | 37 | 48 | 63 | 7-1/2 | 15 | 15 | 25 | 30 | 60 | 75 | — | XTCE080F00_ | | | |
| 95 | 110 | 30 | 45 | 57 | 75 | 7-1/2 | 15 | 15 | 25 | 40 | 75 | 100 | — | XTCE095F00_ | | | |
| Frame G | | | | | | | | | | | | | | | | | |
| 115 | 130 | 37 | 55 | 70 | 90 | 10 | 25 | 25 | 40 | 50 | 100 | 125 | — | XTCE115G00_ | | | |
| 150 | 160 | 48 | 75 | 91 | 96 | 15 | 25 | 30 | 40 | 60 | 125 | 125 | — | XTCE150G00_ | | | |

① Underscore () indicates magnet coil suffix required. See **Table B-57, Page B-38**.
 ② For Spring Cage Terminals, insert **C** after the fourth digit of the Catalogue Number. Example: XTCE**C**007B10A. For 7 – 12A XTCEC Contactors, the power, auxiliary and coil terminals are spring cage. For 18 – 32A XTCEC Contactors, the auxiliary and coil terminals are spring cage. For 40 – 150A XTCEC Contactors, the coil terminals only are spring cage.
 ③ For electrical life contactor application data, see **Table B-51, Page B-35**.

Notes:

The 7 – 32A XTCE Contactors have positively driven contacts between the integrated auxiliary contact and the auxiliary contact module as well as within the auxiliary contact modules.

The 40 – 65A XTCE Contactors have positively driven contacts within the auxiliary contact module. 6 auxiliary contacts are possible with a combination of side mounted and front mount auxiliary contacts.

DC operated contactors (Frames B – G, 7 – 150A) have a built-in suppressor circuit.

Frame B – C contactors with 1NC built-in auxiliary are mirror contacts (XTCE...B01_ – XTCE...C01_).

Contact Sequence (Circuit Symbols) **Page B-35**
 Coil Voltage Chart **Page B-38**
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Non-reversing Contactors



Frame L



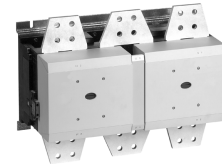
Frame M



Frame N



Frame P



Frame R

B

Table B-50. Full Voltage Non-reversing 3-Pole Contactors, Frame L – Frame R

| I _e (A) | I _e = I _{th} (A) | Maximum kW Ratings AC-3 | | | | | Maximum 3-Phase Motor Rating, UL/CSA | | | | | | | | Aux. Contacts | Catalogue Number — Screw Terminals ① | Price | |
|--------------------|--------------------------------------|---------------------------|--|--|--|--|--------------------------------------|--|------|--------------------|------|------|------|---------|---------------|--------------------------------------|---------|--|
| | | 3-Phase Motors 50 – 60 Hz | | | | | 1-Phase hp Ratings | | | 3-Phase hp Ratings | | | | AC Coil | | | DC Coil | |
| AC-3 | | AC-1 (60°C) | | | | | | | 115V | 200V | 230V | 200V | 230V | 460V | 575V | | | |

Frame L — Standard Coil (110/120V, 230/240V AC Coil Only)

| | | | | | | | | | | | | | | | | | |
|-----|-----|----|-----|-----|-----|-----|---|---|---|----|-----|-----|-----|---------|-------------|--|--|
| 185 | 275 | 55 | 90 | 110 | 175 | 108 | — | — | — | 50 | 60 | 125 | 150 | 2NO-2NC | XTCS185L22_ | | |
| 225 | 315 | 70 | 110 | 132 | 215 | 108 | — | — | — | 60 | 75 | 150 | 200 | 2NO-2NC | XTCS225L22_ | | |
| 250 | 330 | 75 | 132 | 148 | 240 | 108 | — | — | — | 75 | 100 | 200 | 250 | 2NO-2NC | XTCS250L22_ | | |

Frame L — Electronic Coil

| | | | | | | | | | | | | | | | | | |
|-----|-----|----|-----|-----|-----|-----|---|---|---|----|-----|-----|-----|---------|-------------|--|--|
| 185 | 275 | 55 | 90 | 110 | 175 | 108 | — | — | — | 50 | 60 | 125 | 150 | 2NO-2NC | XTCE185L22_ | | |
| 225 | 315 | 70 | 110 | 132 | 215 | 108 | — | — | — | 60 | 75 | 150 | 200 | 2NO-2NC | XTCE225L22_ | | |
| 250 | 350 | 75 | 132 | 148 | 240 | 108 | — | — | — | 75 | 100 | 200 | 250 | 2NO-2NC | XTCE250L22_ | | |

Frame M — Standard Coil (110/120V, 230/240V AC Coil Only)

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|---|---|---|-----|-----|-----|-----|---------|-------------|--|--|
| 300 | 400 | 90 | 160 | 180 | 286 | 132 | — | — | — | 100 | 125 | 250 | 300 | 2NO-2NC | XTCS300M22_ | | |
| 400 | 500 | 125 | 200 | 240 | 344 | 132 | — | — | — | 125 | 150 | 300 | 400 | 2NO-2NC | XTCS400M22_ | | |
| 500 | 700 | 155 | 250 | 300 | 344 | 132 | — | — | — | 150 | 200 | 400 | 500 | 2NO-2NC | XTCS500M22_ | | |

Frame M — Electronic Coil

| | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|---|---|---|-----|-----|-----|-----|---------|-------------|--|--|
| 300 | 400 | 90 | 160 | 180 | 286 | 132 | — | — | — | 100 | 125 | 250 | 300 | 2NO-2NC | XTCE300M22_ | | |
| 400 | 500 | 125 | 200 | 240 | 344 | 132 | — | — | — | 125 | 150 | 300 | 400 | 2NO-2NC | XTCE400M22_ | | |
| 500 | 700 | 155 | 250 | 300 | 344 | 132 | — | — | — | 150 | 200 | 400 | 500 | 2NO-2NC | XTCE500M22_ | | |

Frame N — Electronic Coil

| | | | | | | | | | | | | | | | | | |
|------|------|-----|-----|-----|------|------|---|---|---|-----|-----|-----|-----|---------|---------------|--|--|
| 580 | 800 | 185 | 315 | 348 | 560 | 600 | — | — | — | 200 | 200 | 400 | 600 | 2NO-2NC | XTCE580N22_ ③ | | |
| 650 | 850 | 205 | 355 | 390 | 630 | 600 | — | — | — | 200 | 250 | 500 | 600 | 2NO-2NC | XTCE650N22_ ③ | | |
| 750 | 900 | 240 | 400 | 455 | 720 | 800 | — | — | — | 250 | 300 | 600 | 700 | 2NO-2NC | XTCE750N22_ ③ | | |
| 820 | 1000 | 260 | 450 | 500 | 750 | 800 | — | — | — | 290 | 350 | 700 | 860 | 2NO-2NC | XTCE820N22_ ③ | | |
| 1000 | 1000 | 315 | 560 | 610 | 1000 | 1000 | — | — | — | — | — | — | — | 2NO-2NC | XTCEC10N22_ ③ | | |

Frame P — Electronic Coil

| | | | | | | | | | | | | | | | | | |
|---|------|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------------|--|--|
| — | 1400 | — | — | — | — | — | — | — | — | — | — | — | — | 2NO-2NC | XTCEC14P22_ ③ | | |
|---|------|---|---|---|---|---|---|---|---|---|---|---|---|---------|---------------|--|--|

Frame R — Electronic Coil

| | | | | | | | | | | | | | | | | | |
|------|------|-----|-----|------|------|---|---|---|---|-----|-----|------|------|---------|---------------|--|--|
| 1600 | 1800 | 500 | 900 | 1600 | 1700 | — | — | — | — | 560 | 640 | 1200 | 1300 | 2NO-2NC | XTCEC16R22_ ③ | | |
| — | 2000 | — | — | — | — | — | — | — | — | — | — | — | — | 2NO-2NC | XTCEC20R22_ ③ | | |

① Underscore (_) indicates magnet coil suffix required. See Table B-57, Page B-38.

② For 185 – 500A Contactors at 660/690V or 1000V: Do not reverse directly.

③ When operating the 580 – 2000A XTCE contactors with frequency inverters, the suppressor on the load side must be removed. The load side suppressor must also be removed when performing a high-voltage test — see Pub51204, Pub51209.

Table B-51. Contactor Application Data ④

| Catalogue Prefix | AC-3 | Electrical Life (Operations) |
|------------------|------|------------------------------|
| XTCE012B | 12A | 1 million |
| XTCE015B | 15A | 1.2 million |
| XTCE018C | 18A | 2 million |

④ See Page B-80 for Electrical Life Curves.

Note:

AC and DC operated contactors have a built-in suppressor circuit (Frames L – R, 185 – 2000A).

Table B-52. Full Voltage Non-reversing 3-Pole Contactors — Contact Sequence (Circuit Symbols) — Standard Offering

| Contact Frame | Auxiliary Contacts | Contact Sequence |
|---------------|--------------------|------------------|
| B – C | 1NO | |
| B – C | 1NC | |
| D – G | — | |
| L – R | 2NO-2NC | |

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 Overload Relays Page B-93
 Discount Symbol MC7

Contactors and Starters

Table B-53. Full Voltage 4-Pole Non-reversing Contactors with Screw Terminals

| <i>I_e</i> (A) | | Maximum kW Ratings AC-3 | | | | | Maximum 3-Phase Motor Rating | | | | | Contact Sequence | Catalogue Number ① | Price | | |
|--------------------------|-------------|---------------------------|----------|------|----------|-------|------------------------------|-------|--------------------|------|------|------------------|--------------------------------------|-------------|---------|--|
| AC-3 | AC-1 (60°C) | 3-Phase Motors 50 – 60 Hz | | | | | 1-Phase hp Ratings | | 3-Phase hp Ratings | | | | | AC Coil | DC Coil | |
| | | 220/230V | 380/400V | 415V | 660/690V | 1000V | 115V | 230V | 200V | 230V | 460V | 575V | | | | |
| 12 | 20 | 3.5 | 5.5 | | 6.5 | — | 1/2 | 1-1/2 | 3 | 3 | 5 | 7-1/2 | A1 1 3 5 7 A2 2 4 6 8 | XTCF020B00_ | | |

① Underscore (_) indicates magnet coil suffix required. See Table B-58.

Table B-54. Controlling XTCS and XTCE Contactors Frame L – R (185 – 2000A)

| Description | XTCS185L – XTCS500M | XTCEC16R, XTCEC20R | XTCE185L – XTCEC14P |
|--|---------------------|--------------------|---------------------|
| Conventional A1/A2 are applied to voltage in the usual manner. | | | |
| Direct from the PLC A 24V output from the PLC can be connected directly to connections A3/A4. | — | | |
| From Low-Consumption Command Devices Command devices which can only be subject to minimal loads such as circuit board relays, control circuit devices or position switches can be connected directly to A10/A11. | — | | |

② Standstill in an emergency (Emergency-Stop).

③ Command device connection.

Reversing Contactors



Frame B



Frame C



Frame D



Frame F and G

B

Table B-55. Full Voltage Reversing Contactors with Screw Terminals

| I _e (A) | Maximum kW Ratings AC-3 | | | | Maximum 3-Phase Motor Rating | | | | | | Spare Auxiliary Contacts | | Catalogue Number ① | Price | | |
|--------------------|---------------------------|----------|------|----------|------------------------------|-------|--------------------|-------|-------|-------|--------------------------|--------|--------------------|---------|---------|--|
| | 3-Phase Motors 50 – 60 Hz | | | | 1-Phase hp Ratings | | 3-Phase hp Ratings | | | | K1M | K2M | | AC Coil | DC Coil | |
| AC-3 | 220/230V | 380/400V | 415V | 660/690V | 115V | 230V | 200V | 230V | 460V | 575V | | | | | | |
| Frame B | | | | | | | | | | | | | | | | |
| 7 | 2.2 | 3 | 4 | 3.5 | 1/4 | 1 | 1-1/2 | 2 | 3 | 5 | 163/64 | 163/64 | XTCR007B21_ | | | |
| 9 | 2.5 | 4 | 5.5 | 4.5 | 1/2 | 1-1/2 | 2 | 3 | 5 | 7-1/2 | 163/64 | 163/64 | XTCR009B21_ | | | |
| 12 | 3.5 | 5.5 | 7 | 6.5 | 1/2 | 2 | 3 | 3 | 7-1/2 | 10 | 163/64 | 163/64 | XTCR012B21_ | | | |
| Frame C | | | | | | | | | | | | | | | | |
| 18 | 5 | 7.5 | 8 | 11 | 2 | 3 | 5 | 5 | 10 | 15 | 163/64 | 163/64 | XTCR018C21_ | | | |
| 25 | 7.5 | 11 | 14.5 | 14 | 2 | 5 | 7-1/2 | 7-1/2 | 15 | 20 | 163/64 | 163/64 | XTCR025C21_ | | | |
| 32 | 10 | 15 | 18 | 17 | 3 | 5 | 10 | 10 | 20 | 25 | 163/64 | 163/64 | XTCR032C21_ | | | |
| Frame D | | | | | | | | | | | | | | | | |
| 40 | 12.5 | 18.5 | 24 | 23 | 3 | 7-1/2 | 10 | 15 | 30 | 40 | — | — | XTCR040D11_ | | | |
| 50 | 15.5 | 22 | 30 | 30 | 3 | 10 | 15 | 20 | 40 | 50 | — | — | XTCR050D11_ | | | |
| 65 | 20 | 30 | 39 | 35 | 5 | 15 | 20 | 25 | 50 | 60 | — | — | XTCR065D11_ | | | |
| Frame F | | | | | | | | | | | | | | | | |
| 80 | 25 | 37 | 48 | 63 | 7-1/2 | 15 | 25 | 30 | 60 | 75 | — | — | XTCR080F11_ | | | |
| 95 | 30 | 45 | 57 | 75 | 7-1/2 | 15 | 25 | 40 | 75 | 100 | — | — | XTCR095F11_ | | | |
| Frame G | | | | | | | | | | | | | | | | |
| 115 | 37 | 55 | 70 | 90 | 10 | 25 | 40 | 50 | 100 | 100 | — | — | XTCR115G11_ | | | |
| 150 | 48 | 75 | 91 | 96 | 15 | 30 | 40 | 60 | 100 | 100 | — | — | XTCR150G11_ | | | |

① Underscore (_) indicates magnet coil suffix required. See Table B-57.

Table B-56. XTCR Reversing Contactor Components

| Qty | Frame | B | C | D | F | G |
|-----|----------------------|-------------|-------------|-------------|-------------|-------------|
| 2 | Contactors | XTCE...B01_ | XTCE...C01_ | XTCE...D00_ | XTCE...F00_ | XTCE...G00_ |
| 2 | Auxiliary Contact | XTCEXFAC20 | XTCEXFAC20 | XTCEXFBG11 | XTCEXFBG11 | XTCEXFBG11 |
| 1 | Mechanical Interlock | XTCEXMLB | XTCEXMLC | XTCEXMLD | XTCEXMLG | XTCEXMLG |
| 1 | Reversing Link Kit | XTCEXRLB | XTCEXRLC | XTCEXRLD | XTCEXRLG | XTCEXRLG |

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Contactors and Starters

B

Table B-57. Magnet Coil Suffix

| Coil Voltage | Suffix Code |
|------------------------|-------------|
| Frame A – B | |
| 110V 50 Hz, 120V 60 Hz | A |
| 220V 50 Hz, 240V 60 Hz | B |
| 230V 50 Hz | F |
| 24V 50/60 Hz | T |
| 24V DC | TD |
| 415V 50 Hz, 480V 60 Hz | C |
| 550V 50 Hz, 600V 60 Hz | D |
| 208V 60 Hz | E |
| 190V 50 Hz, 220V 60 Hz | G |
| 240V 50 Hz, 277V 60 Hz | H |
| 380V 50 Hz, 440V 60 Hz | L |
| 400V 50 Hz | N |
| 380V 60 Hz | P |
| 12V 50/60 Hz | R |
| 24V 50 Hz | U |
| 42V 50 Hz, 48V 60 Hz | W |
| 48V 50 Hz | Y |
| 120V DC | AD |
| 220V DC | BD |
| 12V DC | RD |
| 48V DC | WD |

| Coil Voltage | Suffix Code |
|------------------------|------------------------|
| Frame C – F | |
| 110V 50 Hz, 120V 60 Hz | A |
| 220V 50 Hz, 240V 60 Hz | B |
| 230V 50 Hz | F |
| 24V 50/60 Hz | T |
| 24 – 27V DC | TD |
| 415V 50 Hz, 480V 60 Hz | C |
| 550V 50 Hz, 600V 60 Hz | D |
| 208V 60 Hz | E |
| 190V 50 Hz, 220V 60 Hz | G |
| 240V 50 Hz, 277V 60 Hz | H |
| 380V 50 Hz, 440V 60 Hz | L |
| 400V 50 Hz | N |
| 380V 60 Hz | P |
| 12V 50/60 Hz | R |
| 24V 50 Hz | U |
| 42V 50 Hz, 48V 60 Hz | W |
| 48V 50 Hz | Y |
| 110 – 130V DC | AD |
| 200 – 240V DC | BD |
| 12 – 14V DC | RD ^① |
| 48 – 60V DC | WD |

| Coil Voltage | Suffix Code |
|------------------------------|------------------------|
| Frame G | |
| 100 – 120V 50/60 Hz | A |
| 190 – 240V 50/60 Hz | B |
| 24V 50/60 Hz | T |
| 24 – 27V DC | TD |
| 480 – 500V 50/60 Hz | C |
| 380 – 440V 50/60 Hz | L |
| 42 – 48V 50/60 Hz | W |
| 110 – 130V DC | AD |
| 200 – 240V DC | BD |
| 48 – 60V DC | WD |
| Frame L – N | |
| 110 – 250V 40 – 60 Hz/DC | A |
| 250 – 500V 40 – 60 Hz | C |
| 48 – 110V 40 – 60 Hz/DC | Y |
| 24 – 48V DC | TD ^② |
| Frame L – M, S-Series | |
| 110 – 120V 50/60 Hz | A |
| 220 – 240V 50/60 Hz | B |
| Frame P – R | |
| 220 – 250V 50 – 60 Hz/DC | B |

① Frame C – D only.
② Frame L – M only.

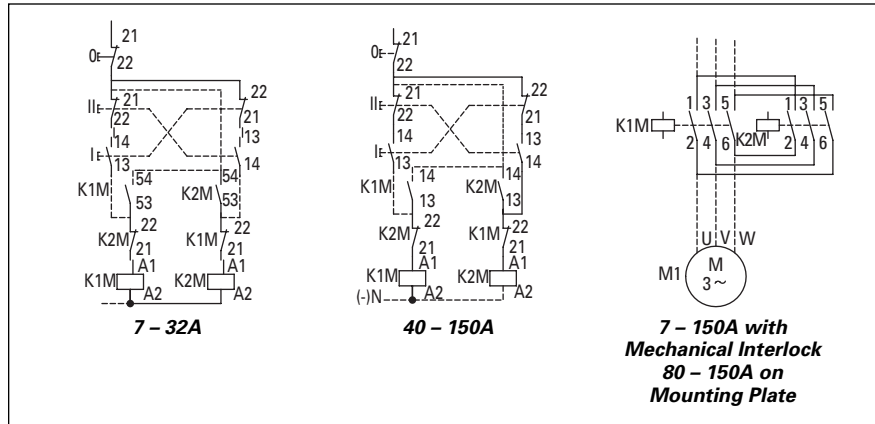


Figure B-34. 7 – 150A XTCR Reversing Contactor Wiring Diagram

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 Dimensions **Page B-82**
 Overload Relays **Page B-93**
 Discount Symbol **MC7**

Non-reversing Starters



Frame B



Frame C



Frame D



Frame F/G



Frame L

B

Table B-58. Full Voltage Non-reversing 3-Pole Starters

| I _e (A) | | Maximum kW Ratings AC-3 | | | | | Maximum 3-Phase Motor Rating | | | | | | Auxiliary Contacts | Catalogue Number ①② | Price | |
|--------------------|------|---------------------------|----------|------|----------|-------|------------------------------|-------|--------------------|-------|-----------------|-------|--------------------|---------------------|---------|---------|
| AC-3 | AC-1 | 3-Phase Motors 50 – 60 Hz | | | | | 1-Phase hp Ratings | | 3-Phase hp Ratings | | | | | | AC Coil | DC Coil |
| | | 220/230V | 380/400V | 415V | 660/690V | 1000V | 115V | 230V | 200V | 230V | 460V | 575V | | | | |
| Frame B | | | | | | | | | | | | | | | | |
| 7 | 20 | 2.2 | 3 | 4 | 3.5 | — | 1/4 | 1 | 1-1/2 | 2 | 3 | 5 | 1NO | XTAE007B10_ | | |
| 7 | 20 | 2.2 | 3 | 4 | 3.5 | — | 1/4 | 1 | 1-1/2 | 2 | 3 | 5 | 1NC | XTAE007B01_ | | |
| 9 | 20 | 2.5 | 4 | 5.5 | 4.5 | — | 1/2 | 1-1/2 | 3 | 3 | 5 | 7-1/2 | 1NO | XTAE009B10_ | | |
| 9 | 20 | 2.5 | 4 | 5.5 | 4.5 | — | 1/2 | 1-1/2 | 3 | 3 | 5 | 7-1/2 | 1NC | XTAE009B01_ | | |
| 12 | 20 | 3.5 | 5.5 | 7 | 6.5 | — | 1 | 2 | 3 | 3 | 10 ^③ | 10 | 1NO | XTAE012B10_ | | |
| 12 | 20 | 3.5 | 5.5 | 7 | 6.5 | — | 1 | 2 | 3 | 3 | 10 ^③ | 10 | 1NC | XTAE012B01_ | | |
| 15.5 | 20 | 4 | 7.5 | 8 | 7 | — | 1 | 3 | 5 | 5 | 10 ^③ | 10 | 1NO | XTAE015B10_ | | |
| 15.5 | 20 | 4 | 7.5 | 8 | 7 | — | 1 | 3 | 5 | 5 | 10 ^③ | 10 | 1NC | XTAE015B01_ | | |
| Frame C | | | | | | | | | | | | | | | | |
| 18 | 35 | 5 | 7.5 | 10 | 11 | — | 2 | 3 | 5 | 5 | 10 ^③ | 15 | 1NO | XTAE018C10_ | | |
| 18 | 35 | 5 | 7.5 | 10 | 11 | — | 2 | 3 | 5 | 5 | 10 ^③ | 15 | 1NC | XTAE018C01_ | | |
| 25 | 40 | 7.5 | 11 | 14.5 | 14 | — | 2 | 5 | 7-1/2 | 7-1/2 | 15 | 20 | 1NO | XTAE025C10_ | | |
| 25 | 40 | 7.5 | 11 | 14.5 | 14 | — | 2 | 5 | 7-1/2 | 7-1/2 | 15 | 20 | 1NC | XTAE025C01_ | | |
| 32 | 40 | 10 | 15 | 18 | 17 | — | 3 | 5 | 10 | 10 | 20 | 25 | 1NO | XTAE032C10_ | | |
| 32 | 40 | 10 | 15 | 18 | 17 | — | 3 | 5 | 10 | 10 | 20 | 25 | 1NC | XTAE032C01_ | | |
| Frame D | | | | | | | | | | | | | | | | |
| 40 | 50 | 12.5 | 18.5 | 24 | 23 | — | 3 | 7-1/2 | 10 | 15 | 30 | 40 | — | XTAE040D00_ | | |
| 50 | 60 | 15.5 | 22 | 30 | 30 | — | 3 | 10 | 15 | 20 | 40 | 50 | — | XTAE050D00_ | | |
| 65 | 72 | 20 | 30 | 39 | 35 | — | 5 | 15 | 20 | 25 | 50 | 60 | — | XTAE065D00_ | | |
| Frame F | | | | | | | | | | | | | | | | |
| 80 | 110 | 25 | 37 | 48 | 63 | — | 7-1/2 | 15 | 25 | 30 | 60 | 75 | — | XTAE080F00_ | | |
| 95 | 110 | 30 | 45 | 57 | 75 | — | 7-1/2 | 15 | 25 | 40 | 75 | 100 | — | XTAE095F00_ | | |
| Frame G | | | | | | | | | | | | | | | | |
| 115 | 160 | 37 | 55 | 70 | 105 | — | 10 | 25 | 40 | 50 | 100 | 125 | — | XTAE115G00_ | | |
| 150 | 160 | 48 | 75 | 91 | 125 | — | 15 | 30 | 40 | 60 | 125 | 125 | — | XTAE150G00_ | | |
| Frame L | | | | | | | | | | | | | | | | |
| 185 | 275 | 55 | 90 | 110 | 175 | 108 | — | — | 50 | 60 | 125 | 150 | 2NO-2NC | XTAE185L22_ | | |
| 225 | 315 | 70 | 110 | 132 | 215 | 108 | — | — | 60 | 75 | 150 | 200 | 2NO-2NC | XTAE225L22_ | | |
| 250 | 350 | 75 | 132 | 148 | 240 | 108 | — | — | 75 | 100 | 200 | 250 | 2NO-2NC | XTAE250L22_ | | |

① Underscore () indicates magnet coil suffix required. See Table B-61.
 ② Underscore () indicates overload relay suffix required. See Table B-63.
 ③ For electrical life contactor application data see Table B-62.

Coil Voltage Chart Page B-40
 Accessories Page B-47
 Dimensions Page B-82
 Overload Relays Page B-93
 Discount Symbol MC7

Contactors and Starters

Table B-59. Full Voltage Non-reversing S-Series 3-Pole Starters

| I _e (A) | | Maximum kW Ratings AC-3 | | | | | Maximum 3-Phase Motor Rating | | | | | | Catalogue Number ①② | Price | |
|--------------------|------|---------------------------|--------------|------|--------------|-------|------------------------------|------|--------------------|------|------|------|---------------------|---------|---------|
| AC-3 | AC-1 | 3-Phase Motors 50 – 60 Hz | | | | | 1-Phase hp Ratings | | 3-Phase hp Ratings | | | | | AC Coil | DC Coil |
| | | 220/ 230V | 380/ 400V | 415V | 660/ 690V | 1000V | 115V | 230V | 200V | 230V | 460V | 575V | | | |
| Frame L | | | | | | | | | | | | | | | |
| 185 | 337 | 55 | 90 | 110 | 175 | 108 | — | — | 50 | 60 | 125 | 150 | XTAS185L22_ _ | | |
| 225 | 386 | 70 | 110 | 132 | 215 | 108 | — | — | 60 | 75 | 150 | 200 | XTAS225L22_ _ | | |
| 250 | 429 | 75 | 132 | 148 | 240 | 108 | — | — | 75 | 100 | 200 | 250 | XTAS250L22_ _ | | |

- ① Underscore (_) indicates magnet coil suffix required. See **Table B-61**.
- ② Underscore (_) indicates overload relay suffix required. See **Table B-63**.

Reversing Starters

Table B-60. Full Voltage Reversing Starters with Screw Terminals

| I _e (A) | | Maximum kW Ratings AC-3 | | | | Maximum 3-Phase Motor Rating | | | | | | Catalogue Number ③④ | Price | | |
|--------------------|------|---------------------------|--------------|------|--------------|------------------------------|-------|--------------------|------|-------|------|---------------------|---------------|---------|--|
| AC-3 | | 3-Phase Motors 50 – 60 Hz | | | | 1-Phase hp Ratings | | 3-Phase hp Ratings | | | | | AC Coil | DC Coil | |
| | | 220/ 230V | 380/ 400V | 415V | 660/ 690V | 115V | 230V | 200V | 230V | 460V | 575V | | | | |
| Frame B | | | | | | | | | | | | | | | |
| 7 | 2.2 | 3 | 4 | 3.5 | 1/4 | 1 | 1-1/2 | 2 | 3 | 5 | 10 | 15 | XTAR007B21_ _ | | |
| 9 | 2.5 | 4 | 5.5 | 4.5 | 1/2 | 1-1/2 | 3 | 3 | 5 | 7-1/2 | 10 | 20 | XTAR009B21_ _ | | |
| 12 | 3.5 | 5.5 | 7 | 6.5 | 1 | 2 | 3 | 3 | 10 | 10 | 20 | 25 | XTAR012B21_ _ | | |
| Frame C | | | | | | | | | | | | | | | |
| 18 | 5 | 7.5 | 8 | 11 | 2 | 3 | 5 | 5 | 10 | 15 | 20 | 25 | XTAR018C21_ _ | | |
| 25 | 7.5 | 11 | 14.5 | 14 | 2 | 5 | 7-1/2 | 7-1/2 | 15 | 20 | 25 | 30 | XTAR025C21_ _ | | |
| 32 | 10 | 15 | 18 | 17 | 3 | 5 | 10 | 10 | 20 | 25 | 30 | 40 | XTAR032C21_ _ | | |
| Frame D | | | | | | | | | | | | | | | |
| 40 | 12.5 | 18.5 | 24 | 23 | 3 | 7-1/2 | 10 | 15 | 30 | 40 | 50 | 60 | XTAR040D11_ _ | | |
| 50 | 15.5 | 22 | 30 | 30 | 3 | 10 | 15 | 20 | 40 | 50 | 60 | 75 | XTAR050D11_ _ | | |
| 65 | 20 | 30 | 39 | 35 | 5 | 15 | 20 | 25 | 50 | 60 | 75 | 100 | XTAR065D11_ _ | | |

- ③ Underscore (_) indicates magnet coil suffix required. See **Table B-61**.
- ④ Underscore (_) indicates overload relay suffix required. See **Table B-63**.

Table B-61. Magnet Coil Suffix

| Coil Voltage | Suffix Code |
|------------------------|-------------|
| Frame A – B | |
| 110V 50 Hz, 120V 60 Hz | A |
| 220V 50 Hz, 240V 60 Hz | B |
| 230V 50 Hz | F |
| 24V 50/60 Hz | T |
| 24V DC | TD |
| 415V 50 Hz, 480V 60 Hz | C |
| 550V 50 Hz, 600V 60 Hz | D |
| 208V 60 Hz | E |
| 190V 50 Hz, 220V 60 Hz | G |
| 240V 50 Hz, 277V 60 Hz | H |
| 380V 50 Hz, 440V 60 Hz | L |
| 400V 50 Hz | N |
| 380V 60 Hz | P |
| 12V 50/60 Hz | R |
| 24V 50 Hz | U |
| 42V 50 Hz, 48V 60 Hz | W |
| 48V 50 Hz | Y |
| 120V DC | AD |
| 220V DC | BD |
| 12V DC | RD |
| 48V DC | WD |

| Coil Voltage | Suffix Code |
|------------------------|-------------|
| Frame C – F | |
| 110V 50 Hz, 120V 60 Hz | A |
| 220V 50 Hz, 240V 60 Hz | B |
| 230V 50 Hz | F |
| 24V 50/60 Hz | T |
| 24 – 27V DC | TD |
| 415V 50 Hz, 480V 60 Hz | C |
| 550V 50 Hz, 600V 60 Hz | D |
| 208V 60 Hz | E |
| 190V 50 Hz, 220V 60 Hz | G |
| 240V 50 Hz, 277V 60 Hz | H |
| 380V 50 Hz, 440V 60 Hz | L |
| 400V 50 Hz | N |
| 380V 60 Hz | P |
| 12V 50/60 Hz | R |
| 24V 50 Hz | U |
| 42V 50 Hz, 48V 60 Hz | W |
| 48V 50 Hz | Y |
| 110 – 130V DC | AD |
| 200 – 240V DC | BD |
| 12 – 14V DC | RD |
| 48 – 60V DC | WD |

| Coil Voltage | Suffix Code |
|--------------------------|-------------|
| Frame G | |
| 100 – 120V 50/60 Hz | A |
| 190 – 240V 50/60 Hz | B |
| 24V 50/60 Hz | T |
| 24 – 27V DC | TD |
| 480 – 500V 50/60 Hz | C |
| 380 – 440V 50/60 Hz | L |
| 42 – 48V 50/60 Hz | W |
| 110 – 130V DC | AD |
| 200 – 240V DC | BD |
| 48 – 60V DC | WD |
| Frame L – N | |
| 110 – 250V 40 – 60 Hz/DC | A |
| 250 – 500V 40 – 60 Hz | C |
| 48 – 110V 40 – 60 Hz/DC | Y |
| 24 – 48V DC | TD |

| Frame L – N, S-Series | |
|-----------------------|---|
| 110 – 120V 50/60 Hz | A |
| 220 – 240V 50/60 Hz | B |

- ⑤ Frame C – D only.
- ⑥ Frame L – M only.

Table B-62. Starter Application Data

| Catalogue Prefix | AC-3 | Electrical Life (Operations) |
|------------------|------|------------------------------|
| XTAE012B | 12A | 1 million |
| XTAE015B | 15A | 1.2 million |
| XTAE018C | 18A | 2 million |

⑦ See **Page B-80** for Electrical Life Curves.

Accessories **Page B-47**
 Dimensions **Page B-82**
 Overload Relays **Page B-93**
 Discount Symbol **MC7**

Table B-63. XTOB and XTOT Overload Relay Suffix

| Motor Full Load Amperes | Suffix Code | For Use with Contactor Amp Range | Overload Relay Catalogue Number |
|-------------------------|-------------|----------------------------------|---------------------------------|
| Frame B | | | |
| 0.1 – 0.16 | P16 | 7 – 15A | XTOBP16BC1 |
| 0.16 – 0.24 | P24 | 7 – 15A | XTOBP24BC1 |
| 0.24 – 0.4 | P40 | 7 – 15A | XTOBP40BC1 |
| 0.4 – 0.6 | P60 | 7 – 15A | XTOBP60BC1 |
| 0.6 – 1 | 001 | 7 – 15A | XTOB001BC1 |
| 1 – 1.6 | 1P6 | 7 – 15A | XTOB1P6BC1 |
| 1.6 – 2.4 | 2P4 | 7 – 15A | XTOB2P4BC1 |
| 2.4 – 4 | 004 | 7 – 15A | XTOB004BC1 |
| 4 – 6 | 006 | 7 – 15A | XTOB006BC1 |
| 6 – 10 | 010 | 7 – 15A | XTOB010BC1 |
| 9 – 12 | 012 | 9 – 15A | XTOB012BC1 |
| 12 – 16 | 016 | 12 – 15A | XTOB016BC1 |
| Frame C | | | |
| 0.1 – 0.16 | P16 | 18 – 32A | XTOBP16CC1 |
| 0.16 – 0.24 | P24 | 18 – 32A | XTOBP24CC1 |
| 0.24 – 0.4 | P40 | 18 – 32A | XTOBP40CC1 |
| 0.4 – 0.6 | P60 | 18 – 32A | XTOBP60CC1 |
| 0.6 – 1 | 001 | 18 – 32A | XTOB001CC1 |
| 1 – 1.6 | 1P6 | 18 – 32A | XTOB1P6CC1 |
| 1.6 – 2.4 | 2P4 | 18 – 32A | XTOB2P4CC1 |
| 2.4 – 4 | 004 | 18 – 32A | XTOB004CC1 |
| 4 – 6 | 006 | 18 – 32A | XTOB006CC1 |
| 6 – 10 | 010 | 18 – 32A | XTOB010CC1 |
| 10 – 16 | 016 | 18 – 32A | XTOB016CC1 |
| 16 – 24 | 024 | 18 – 32A | XTOB024CC1 |
| 24 – 32 | 032 | 25 – 32A | XTOB032CC1 |

| Motor Full Load Amperes | Suffix Code | For Use with Contactor Amp Range | Overload Relay Catalogue Number |
|-------------------------|-------------|----------------------------------|---------------------------------|
| Frame D | | | |
| 6 – 10 | 010 | 40 – 65A | XTOB010DC1 |
| 10 – 16 | 016 | 40 – 65A | XTOB016DC1 |
| 16 – 24 | 024 | 40 – 65A | XTOB024DC1 |
| 24 – 40 | 040 | 40 – 65A | XTOB040DC1 |
| 40 – 57 | 057 | 50 – 65A | XTOB057DC1 |
| 50 – 65 | 065 | 65A | XTOB065DC1 |
| Frame F | | | |
| 25 – 35 | 035 | 80 – 95A | XTOB055GC1 ① |
| 35 – 50 | 050 | 80 – 95A | XTOB050GC1 ① |
| 50 – 70 | 070 | 80 – 95A | XTOB070GC1 ① |
| 70 – 100 | 100 | 80 – 95A | XTOB100GC1 ① |
| Frame G | | | |
| 25 – 35 | 035 | 115 – 150A | XTOB055GC1 ① |
| 35 – 50 | 050 | 115 – 150A | XTOB050GC1 ① |
| 50 – 70 | 070 | 115 – 150A | XTOB070GC1 ① |
| 70 – 100 | 100 | 115 – 150A | XTOB100GC1 ① |
| 95 – 125 | 125 | 115 – 150A | XTOB125GC1 ① |
| 120 – 150 | 150 | 150A | XTOB150GC1 ① |
| Frame L | | | |
| 50 – 70 | 070 | 185 – 250A | XTOB070LC1 |
| 70 – 100 | 100 | 185 – 250A | XTOB100LC1 |
| 95 – 125 | 125 | 185 – 250A | XTOB125LC1 |
| 120 – 160 | 160 | 185 – 250A | XTOB160LC1 |
| 160 – 220 | 220 | 185 – 250A | XTOB220LC1 |
| 200 – 250 | 250 | 225 – 250A | XTOB250LC1 |

① Catalogue Number refers to direct mount overload relay. Add an S to the end of the Catalogue Number for separate mount.

Table B-64. C396 Overload Relay Suffix ②

| FLA Range (Amps) | Suffix by Feature Set | | | | For Use with XTIEC Contactor Frame Size / Width | Catalogue Number by Feature Set | | | |
|-----------------------------------|-----------------------|----------------|-----------------------|------------------------|---|---------------------------------|------------------|---------------------------|------------------------|
| | Econ. Class 10 | Econ. Class 20 | Std. Class 5/10/20/30 | Advanced Class 10/20 ③ | | Economy Class 10 | Economy Class 20 | Standard Class 5/10/20/30 | Advanced Class 10/20 ③ |
| 45 mm Overload Frame Size | | | | | | | | | |
| 0.1 – 0.5 | 1EP05 | 2EP05 | 3EP05 | 4EP05 | B / 45 mm | C396A1MP05C10XB | C396A1MP05C20XB | C396A2AP05SELXB | C396A3AP05SELXB |
| 0.4 – 2.0 | 1E002 | 2E002 | 3E002 | 4E002 | B / 45 mm | C396A1M002C10XB | C396A1M002C20XB | C396A2A002SELXB | C396A3A002SELXB |
| 1 – 5 | 1E005 | 2E005 | 3E005 | 4E005 | B / 45 mm | C396A1M005C10XB | C396A1M005C20XB | C396A2A005SELXB | C396A3A005SELXB |
| 1.6 – 8 | 1E008 | 2E008 | 3E008 | 4E008 | B / 45 mm | C396A1M008C10XB | C396A1M008C20XB | C396A2A008SELXB | C396A3A008SELXB |
| 6.4 – 32 | 1E032 | 2E032 | 3E032 | 4E032 | B / 45 mm | C396A1M032C10XB | C396A1M032C20XB | C396A2A032SELXB | C396A3A032SELXB |
| 0.1 – 0.5 | 1EP05 | 2EP05 | 3EP05 | 4EP05 | C / 45 mm | C396A1MP05C10XC | C396A1MP05C20XC | C396A2AP05SELXC | C396A3AP05SELXC |
| 0.4 – 2.0 | 1E002 | 2E002 | 3E002 | 4E002 | C / 45 mm | C396A1M002C10XC | C396A1M002C20XC | C396A2A002SELXC | C396A3A002SELXC |
| 1 – 5 | 1E005 | 2E005 | 3E005 | 4E005 | C / 45 mm | C396A1M005C10XC | C396A1M005C20XC | C396A2A005SELXC | C396A3A005SELXC |
| 1.6 – 8 | 1E008 | 2E008 | 3E008 | 4E008 | C / 45 mm | C396A1M008C10XC | C396A1M008C20XC | C396A2A008SELXC | C396A3A008SELXC |
| 6.4 – 32 | 1E032 | 2E032 | 3E032 | 4E032 | C / 45 mm | C396A1M032C10XC | C396A1M032C20XC | C396A2A032SELXC | C396A3A032SELXC |
| 1.6 – 8 | 1E008 | 2E008 | 3E008 | 4E008 | D / 55 mm | C396A1M008C10XD | C396A1M008C20XD | C396A2A008SELXD | C396A3A008SELXD |
| 6.4 – 32 | 1E032 | 2E032 | 3E032 | 4E032 | D / 55 mm | C396A1M032C10XD | C396A1M032C20XD | C396A2A032SELXD | C396A3A032SELXD |
| 9 – 45 | 1E045 | 2E045 | 3E045 | 4E045 | D / 55 mm | C396A1M045C10XD | C396A1M045C20XD | C396A2A045SELXD | C396A3A045SELXD |
| 65 mm Overload Frame Size | | | | | | | | | |
| 15 – 75 | 1E075 | 2E075 | 3E075 | 4E075 | D / 55 mm | C396B1M075C10XD | C396B1M075C20XD | C396B2A075SELXD | C396B3A075SELXD |
| 22 – 110 | 1E110 | 2E110 | 3E110 | 4E110 | F – G / 90 mm | C396B1M110C10XF | C396B1M110C20XF | C396B2A110SELXF | C396B3A110SELXF |
| 110 mm Overload Frame Size | | | | | | | | | |
| 30 – 150 | — | — | 3E150 | 4E150 | G / 90 mm | — | — | C396C2A150SELAX ④ | C396C3A150SELAX ④ |

② Product available first quarter of 2007.

③ Contact local sales office for availability.

④ Catalogue Number listed is for Stand-Alone Overload Relay. For direct connection of 110 mm C396 to Frame F/G XT Contactors use 110 mm XT Bus Bar Kit, C396CBARXT.

Contactors and Starters

Star-Delta (Wye-Delta) Starters

Table B-65. Star-Delta (Wye-Delta) Starters

| I _e (A) | Maximum kW Ratings AC-3 | | | | | | Maximum 3-Phase Current Motor Rating | | | | Maximum Changeover Time (sec) | Components | |
|--------------------|---------------------------|----------|------|------|----------|-------|--------------------------------------|-------|-------|------|-------------------------------|--|--|
| | 3-Phase Motors 50 – 60 Hz | | | | | | 3-Phase hp Ratings | | | | | Description | Catalogue Number ^① |
| AC-3 | 220/230V | 380/400V | 415V | 500V | 660/690V | 1000V | 200V | 230V | 460V | 575V | | | |
| Frame B | | | | | | | | | | | | | |
| 12 | 3 | 5.5 | 7 | 5.5 | 5.5 | — | 3 | 3 | 2-1/2 | 10 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (3) Auxiliary Contacts Star-Delta Link Kit | XTCE007B10_ XTCE007B01_ XTCE007B01_ XTCEXMLB XTTR6A60S51B XTOB...BC1 XTCEXFAC20 XTCEXSDBL |
| 16 | 4 | 7.5 | 8 | 7.5 | 7.5 | — | 3 | 5 | 7-1/2 | 10 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (3) Auxiliary Contacts Star-Delta Link Kit | XTCE009B10_ XTCE009B01_ XTCE009B01_ XTCEXMLB XTTR6A60S51B XTOB...BC1 XTCEXFAC20 XTCEXSDBL |
| 22 | 5.5 | 11 | 14.5 | 11 | 11 | — | 5 | 5 | 10 | 15 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (3) Auxiliary Contacts Star-Delta Link Kit | XTCE012B10_ XTCE012B01_ XTCE012B01_ XTCEXMLB XTTR6A60S51B XTOB...BC1 XTCEXFAC20 XTCEXSDBL |
| Frame C | | | | | | | | | | | | | |
| 30 | 7.5 | 15 | 19 | 18.5 | 18.5 | — | 7-1/2 | 7-1/2 | 15 | 20 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (3) Auxiliary Contacts Star-Delta Link Kit | XTCE018C10_ XTCE018C01_ XTCE018C01_ XTCEXMLC XTTR6A60S51B XTOB...CC1 XTCEXFAC20 XTCEXSDBL |
| 45 | 11 | 22 | 30 | 30 | 22 | — | 10 | 15 | 30 | 40 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (3) Auxiliary Contacts Star-Delta Link Kit | XTCE025C10_ XTCE025C01_ XTCE025C01_ XTCEXMLC XTTR6A60S51B XTOB...CC1 XTCEXFAC20 XTCEXSDBL |
| 55 | 15 | 30 | 39 | 37 | 30 | — | 15 | 20 | 40 | 50 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (3) Auxiliary Contacts Star-Delta Link Kit | XTCE032C10_ XTCE032C01_ XTCE032C01_ XTCEXMLC XTTR6A60S51B XTOB...CC1 XTCEXFAC20 XTCEXSDBL |
| Frame D | | | | | | | | | | | | | |
| 70 | 18.5 | 37 | 37 | 45 | 37 | — | 20 | 25 | 50 | 60 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (2) Auxiliary Contacts (K1M, K3M) (1) Auxiliary Contact (K5M) Star-Delta Link Kit | XTCE040D00_ XTCE040D00_ XTCE040D00_ XTCEXMLD XTTR6A60S51B XTOB...DC1 XTCEXFBG11 XTCEXFBG31 XTCEXSDBL |
| 90 | 22 | 45 | 45 | 55 | 45 | — | 25 | 30 | 60 | 75 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (2) Auxiliary Contacts (K1M, K3M) (1) Auxiliary Contact (K5M) Star-Delta Link Kit | XTCE050D10_ XTCE050D00_ XTCE040D00_ XTCEXMLD XTTR6A60S51B XTOB...DC1 XTCEXFBG11 XTCEXFBG31 XTCEXSDBL |

① Underscore (_) indicates magnet coil suffix required. See Table B-67.

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Contactors and Starters

Table B-65. Star-Delta (Wye-Delta) Starters (Continued)

| I _e (A) | Maximum kW Ratings AC-3 | | | | | | Maximum 3-Phase Current Motor Rating | | | | Maximum Changeover Time (sec) | Components | |
|----------------------------|---------------------------|----------|------|------|----------|-------|--------------------------------------|------|------|------|-------------------------------|--|--|
| | 3-Phase Motors 50 – 60 Hz | | | | | | 3-Phase hp Ratings | | | | | Description | Catalogue Number ^① |
| AC-3 | 220/230V | 380/400V | 415V | 500V | 660/690V | 1000V | 200V | 230V | 460V | 575V | | | |
| Frame D (Continued) | | | | | | | | | | | | | |
| 115 | 30 | 55 | 55 | 75 | 55 | — | 40 | 50 | 100 | 125 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (2) Auxiliary Contacts (K1M, K3M) (1) Auxiliary Contact (K5M) Star-Delta Link Kit | XTCE065D10_ XTCE065D00_ XTCE040D00_ XTCEXMLD XTTR6A60S51B XTOB...DC1 XTCEXFBG11 XTCEXFBG31 XTCEXSDL |
| Frame F | | | | | | | | | | | | | |
| 140 | 37 | 75 | 75 | 90 | 90 | — | 40 | 60 | 125 | 150 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor ^② Mechanical Interlock ^② K1T Timing Relay Overload Relay (2) Auxiliary Contacts (K1M, K3M) (1) Auxiliary Contact (K5M) Star-Delta Link Kit | XTCE080F00_ XTCE080F00_ XTCE050D00_ XTCEXMLG XTTR6A60S51B XTOB...FC1 XTCEXFBG11 XTCEXFBG31 XTCEXSDLF |
| 165 | 45 | 90 | 110 | 110 | 132 | — | 40 | 60 | 125 | 150 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor ^② Mechanical Interlock ^② K1T Timing Relay Overload Relay (2) Auxiliary Contacts (K1M, K3M) (1) Auxiliary Contact (K5M) Star-Delta Link Kit | XTCE095F00_ XTCE095F00_ XTCE065D00_ XTCEXMLG XTTR6A60S51B XTOB...FC1 XTCEXFBG11 XTCEXFBG31 XTCEXSDLF |
| Frame G | | | | | | | | | | | | | |
| 200 | 55 | 110 | 132 | 132 | 160 | — | 50 | 60 | 125 | 150 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (2) Auxiliary Contacts (1) Auxiliary Contact (K5M) Star-Delta Link Kit | XTCE115G00_ XTCE115G00_ XTCE080F00_ XTCEXMLG XTTR6A60S51B XTOB...GC1 XTCEXFBG11 XTCEXFBG31 XTCEXSDLG |
| 260 | 75 | 132 | 148 | 160 | 160 | — | 75 | 100 | 200 | 250 | < 20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay (2) Auxiliary Contacts (1) Auxiliary Contact (K5M) Star-Delta Link Kit | XTCE150G00_ XTCE150G00_ XTCE080F00_ XTCEXMLG XTTR6A60S51B XTOB...GC1 XTCEXFBG11 XTCEXFBG31 XTCEXSDLG |
| Frame L | | | | | | | | | | | | | |
| 315 | 90 | 160 | 180 | 200 | 250 | 132 | 100 | 125 | 250 | 300 | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor ^② Mechanical Interlock ^② K1T Timing Relay Overload Relay K3M Auxiliary Contact Star-Delta Link Kit | XTCE185L22_ XTCE185L22_ XTCE115G00_ XTCEXMLM XTTR6A60S51B XTOB...LC1 XTCEXFBG22 XTCEXSDL225 |
| 385 | 110 | 200 | 240 | 250 | 315 | 160 | 125 | 150 | 300 | 400 | <20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor ^② Mechanical Interlock ^② K1T Timing Relay Overload Relay K3M Auxiliary Contact Star-Delta Link Kit | XTCE225L22_ XTCE225L22_ XTCE150G00_ XTCEXMLM XTTR6A60S51B XTOB...LC1 XTCEXFBG22 XTCEXSDL225 |
| 430 | 132 | 250 | 300 | 315 | 400 | 200 | 125 | 150 | 300 | 400 | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay Star-Delta Link Kit | XTCE250L22_ XTCE250L22_ XTCE185L22_ XTCEXMLM XTTR6A60S51B XTOB...LC1 XTCEXSDL250 |

① Underscore () indicates magnet coil suffix required. See Table B-67.

② If mechanical interlock of Star Contactor is required, it must be the same frame size of the Delta Contactor or use the same mechanical interlock, see Table B-82, Page B-54 for mechanical interlocks. (Example: XTCE...L22_ and XTCE...M22_ both use Mechanical Interlock XTCEXMLM.)

B

Contactors and Starters

Table B-65. Star-Delta (Wye-Delta) Starters (Continued)

| I _e (A) | Maximum kW Ratings AC-3 | | | | | | Maximum 3-Phase Current Motor Rating | | | | Maximum Changeover Time (sec) | Components | |
|--------------------|---------------------------|----------|------|------|----------|-------|--------------------------------------|------|------|------|-------------------------------|--|---|
| | 3-Phase Motors 50 – 60 Hz | | | | | | 3-Phase hp Ratings | | | | | Description | Catalogue Number ① |
| AC-3 | 220/230V | 380/400V | 415V | 500V | 660/690V | 1000V | 200V | 230V | 460V | 575V | | | |
| Frame M | | | | | | | | | | | | | |
| 515 | 160 | 300 | 348 | 355 | 450 | 200 | 150 | 200 | 400 | 500 | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay Star-Delta Link Kit | XTCE300M22_ XTCE300M22_ XTCE185L22_ XTCEXMLM XTTR6A60S51B XTOT...C3S XTCEXSDLM400 |
| 685 | 200 | 355 | 390 | 450 | 560 | 220 | 200 | 250 | 500 | 600 | <20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay Star-Delta Link Kit | XTCE400M22_ XTCE400M22_ XTCE250L22_ XTCEXMLM XTTR6A60S51B XTOT...C3S XTCEXSDLM400 |
| 860 | 250 | 450 | 500 | 560 | 600 | 220 | 290 | 350 | 700 | 860 | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay | XTCE500M22_ XTCE500M22_ XTCE300M22_ XTCEXMLM XTTR6A60S51B XTOT...C3S |
| Frame N | | | | | | | | | | | | | |
| 1000 | 300 | 560 | 610 | 710 | 900 | 355 | — | — | — | — | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor ② Mechanical Interlock ② K1T Timing Relay Overload Relay | XTCE580N22_ XTCE580N22_ XTCE400M22_ XTCEXMLN XTTR6A60S51B XTOT...C3S |
| 1120 | 350 | 630 | 680 | 750 | 950 | 355 | — | — | — | — | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor ② Mechanical Interlock ② K1T Timing Relay Overload Relay | XTCE650N22_ XTCE650N22_ XTCE400M22_ XTCEXMLN XTTR6A60S51B XTOT...C3S |
| 1290 | 400 | 710 | 760 | 900 | 1200 | 1400 | — | — | — | — | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay | XTCE750N22_ XTCE750N22_ XTCE580N22_ XTCEXMLN XTTR6A60S51B XTOT...C3S |
| 1400 | 450 | 800 | 850 | 950 | 1300 | 1400 | — | — | — | — | <30 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay | XTCE820N22_ XTCE820N22_ XTCE580N22_ XTCEXMLN XTTR6A60S51B XTOT...C3S |
| 1700 | 560 | 1000 | 1050 | 1200 | 1700 | 1700 | — | — | — | — | <20 | K1M Main Contactor K5M Delta Contactor K3M Star Contactor Mechanical Interlock K1T Timing Relay Overload Relay | XTCEC10N22_ XTCEC10N22_ XTCE650N22_ XTCEXMLN XTTR6A60S51B XTOT...C3S |

① Underscore () indicates magnet coil suffix required. See Table B-67.

② If mechanical interlock of Star contactor is required, it must be the same frame size of the Delta contactor or use the same mechanical interlock, see Table B-82, Page B-54 for mechanical interlocks. (Example: XTCE...L22_ and XTCE...M22_ both use Mechanical Interlock XTCEXMLM.)

Table B-66. Spare Auxiliary Contacts

| AC-3 | K1M | K3M | K5M |
|------------|-----|-----|-----|
| 12 – 55 | | | |
| 90 – 260 | | — | — |
| 315 – 1700 | | | |

Notes:

Main Circuit: Depending on the coordination type required (i.e. Type 1 or Type 2) it must be established whether the fuse protection and the input wiring for the main and delta contactors are to be common or separate.

Control Circuit: If the combinations are used in the scope of the IEC/EN 60 204-1, VDE 0113 part 1, point 9.1.1 regarding the supply of control circuits is to be observed.

Coil Voltage Chart Page B-45
 Accessories Page B-47
 Dimensions Page B-82
 Overload Relays Page B-93
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Table B-67. Magnet Coil Suffix

| Coil Voltage | Suffix Code |
|------------------------|-------------|
| Frame A – B | |
| 110V 50 Hz, 120V 60 Hz | A |
| 220V 50 Hz, 240V 60 Hz | B |
| 230V 50 Hz | F |
| 24V 50/60 Hz | T |
| 24V DC | TD |
| 415V 50 Hz, 480V 60 Hz | C |
| 550V 50 Hz, 600V 60 Hz | D |
| 208V 60 Hz | E |
| 190V 50 Hz, 220V 60 Hz | G |
| 240V 50 Hz, 277V 60 Hz | H |
| 380V 50 Hz, 440V 60 Hz | L |
| 400V 50 Hz | N |
| 380V 60 Hz | P |
| 12V 50/60 Hz | R |
| 24V 50 Hz | U |
| 42V 50 Hz, 48V 60 Hz | W |
| 48V 50 Hz | Y |
| 120V DC | AD |
| 220V DC | BD |
| 12V DC | RD |
| 48V DC | WD |

| Coil Voltage | Suffix Code |
|------------------------|-------------|
| Frame C – F | |
| 110V 50 Hz, 120V 60 Hz | A |
| 220V 50 Hz, 240V 60 Hz | B |
| 230V 50 Hz | F |
| 24V 50/60 Hz | T |
| 24 – 27V DC | TD |
| 415V 50 Hz, 480V 60 Hz | C |
| 550V 50 Hz, 600V 60 Hz | D |
| 208V 60 Hz | E |
| 190V 50 Hz, 220V 60 Hz | G |
| 240V 50 Hz, 277V 60 Hz | H |
| 380V 50 Hz, 440V 60 Hz | L |
| 400V 50 Hz | N |
| 380V 60 Hz | P |
| 12V 50/60 Hz | R |
| 24V 50 Hz | U |
| 42V 50 Hz, 48V 60 Hz | W |
| 48V 50 Hz | Y |
| 110 – 130V DC | AD |
| 200 – 240V DC | BD |
| 12 – 14V DC | RD |
| 48 – 60V DC | WD |

| Coil Voltage | Suffix Code |
|------------------------------|-------------|
| Frame G | |
| 100 – 120V 50/60 Hz | A |
| 190 – 240V 50/60 Hz | B |
| 24V 50/60 Hz | T |
| 24 – 27V DC | TD |
| 480 – 500V 50/60 Hz | C |
| 380 – 440V 50/60 Hz | L |
| 42 – 48V 50/60 Hz | W |
| 110 – 130V DC | AD |
| 200 – 240V DC | BD |
| 48 – 60V DC | WD |
| Frame L – N | |
| 110 – 250V 40 – 60 Hz/DC | A |
| 250 – 500V 40 – 60 Hz | C |
| 48 – 110V 40 – 60 Hz/DC | Y |
| 24 – 48V DC | TD |
| Frame L – M, S-Series | |
| 110 – 120V 50/60 Hz | A |
| 220 – 240V 50/60 Hz | B |
| Frame P – R | |
| 220 – 250V 50 – 60 Hz/DC | B |

① Frame C – D only.

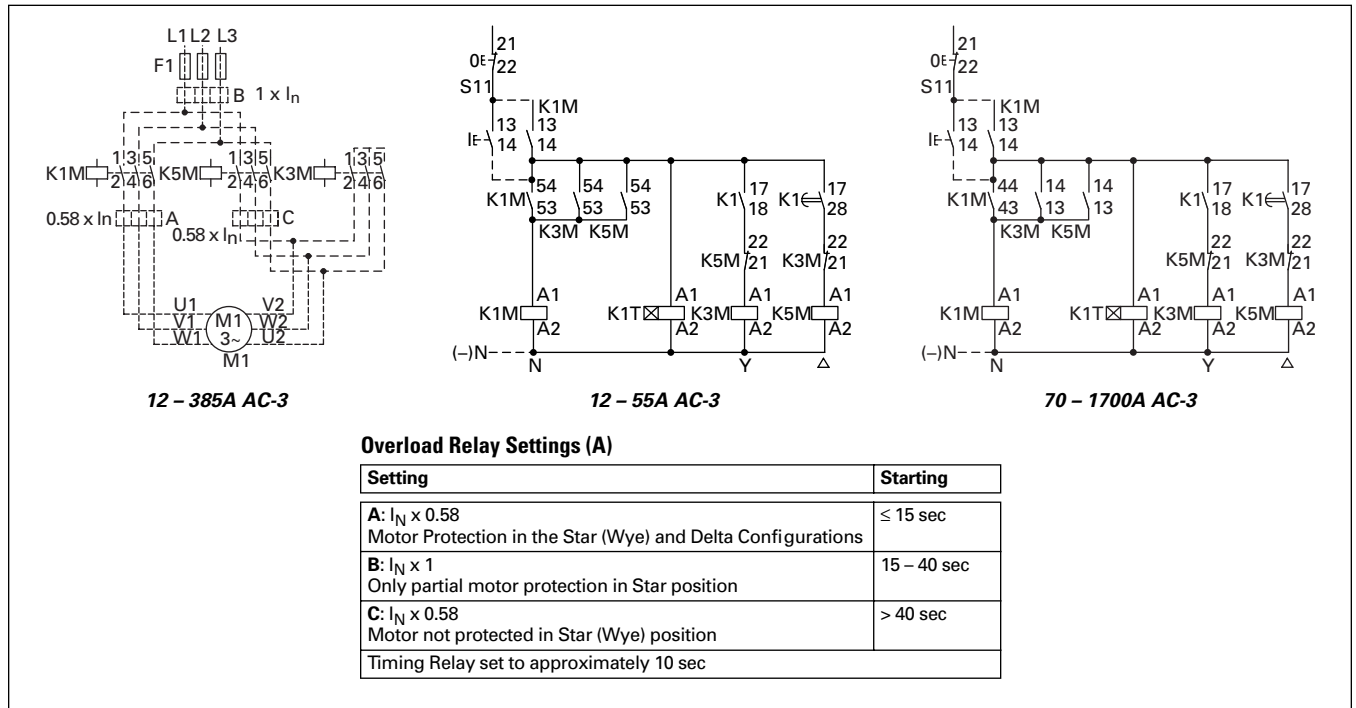
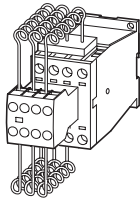


Figure B-35. Wiring Diagrams

Contactors and Starters



B

Table B-68. XTCC Contactors for Three-Phase Capacitors

| Three-Phase Capacitors, 50 – 60 Hz Open kW Ratings ① | | | | Contact Sequence | Catalogue Number ②③ | Price |
|---|------|------|------|------------------|---------------------|-------|
| 230V | 400V | 525V | 690V | | | |
| 7.5 | 12.5 | 16.7 | 20 | | XTCC012B11_ | |
| 11 | 20 | 25 | 33.3 | | XTCC020C11_ | |
| 15 | 25 | 33.3 | 40 | | XTCC025C11_ | |
| 20 | 33.3 | 40 | 55 | | XTCC033D10_ | |
| 25 | 50 | 65 | 85 | | XTCC050D10_ | |

- ① With series resistors, without quick-discharge resistor.
- ② Underscore (_) indicates magnet coil suffix required, see Table B-69.
- ③ Contact Eaton for availability.

Notes:

■ Weld-resistant for capacitors with inrush current peaks up to $180 \times I_N$.

■ For switching of power factor connection with reactors please observe engineering notes, Table B-70. Use of the contactors XTCE without series resistor for centralized power factor correction — when using contactors for group compensation, a minimum inductance of approximately $6 \mu\text{H}$ per capacitor must be available to limit the high inrush current peaks. This corresponds to an air-cored coil with 5 windings and a coil diameter of approximately 140 mm diameter. The conductor cross-section must be selected according to the rated current per phase.

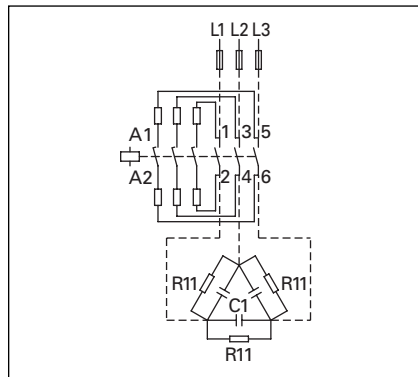


Figure B-36. Wiring Diagram

■ In the case of group compensation multi-stage capacitor banks are connected to the mains, as required. In the process, transient currents of up to $180 \times I_g$ can flow between the capacitors. The capacitors are pre-charged via the early-make auxiliary contacts and the fitted wire resistors, thereby reducing the inrush current. The main contacts then close after a time lag and carry the uninterrupted current. The contactors for capacitors are weld-resistant with inrush current peaks up to $180 \times 1 I_g$ due to their special contacts. For switching reactive-power compensation equipment with chokes, observe design notes.

Table B-69. Magnet Coil Suffix

| Coil Voltage | Suffix Code |
|------------------------|-------------|
| 110V 50 Hz, 120V 60 Hz | A |
| 220V 50 Hz, 240V 60 Hz | B |
| 230V 50 Hz, 240V 60 Hz | F |
| 190V 50 Hz, 220V 60 Hz | G |
| 400V 50 Hz, 440V 60 Hz | N |

Table B-70. Engineering Notes for XTCC and XTCE Contactors for Power Factor Correction

| Catalogue Number | Switching Duty in kvar | | | |
|------------------|------------------------|----------------------|------|------|
| | 230V | 400V 420V 440V | 525V | 690V |

Individual Compensation, Open Version

| | | | | |
|----------|------|------|------|------|
| XTCE007B | 1.5 | 3 | 3.5 | 5 |
| XTCE009B | 2 | 4 | 4.5 | 6 |
| XTCE012B | 2.5 | 4.5 | 5.5 | 7 |
| XTCE015B | 2.5 | 4.5 | 5.5 | 7 |
| XTCE018C | 6.5 | 12 | 14.5 | 19 |
| XTCE025C | 7 | 13.5 | 16 | 21 |
| XTCE032C | 7.5 | 14.5 | 17 | 22.5 |
| XTCE040D | 11 | 20.5 | 24.5 | 32 |
| XTCE050D | 11.5 | 22 | 26 | 34.5 |
| XTCE065D | 12.5 | 23.5 | 28 | 37 |
| XTCE080F | 16 | 30.5 | 36.5 | 48 |
| XTCE095F | 18 | 34 | 41 | 54 |
| XTCE115G | 24 | 46 | 54.5 | 72 |
| XTCE150G | 28 | 53 | 63.5 | 83.5 |
| XTCE185L | 87 | 150 | 190 | 150 |
| XTCE300M | 115 | 200 | 265 | 200 |
| XTCE580N | 175 | 300 | 400 | 300 |

Group Compensation, with Reactor, Open Version

| | | | | |
|----------|-----|-----|-----|-----|
| XTCE007B | 4 | 7 | 7.5 | 12 |
| XTCE009B | 5 | 8 | 10 | 14 |
| XTCE012B | 5.5 | 10 | 12 | 16 |
| XTCE015B | 5.5 | 10 | 12 | 16 |
| XTCE018C | 7.5 | 16 | 20 | 28 |
| XTCE025C | 9 | 18 | 23 | 30 |
| XTCE032C | 10 | 20 | 24 | 32 |
| XTCE040D | 13 | 25 | 30 | 40 |
| XTCE050D | 16 | 30 | 36 | 48 |
| XTCE065D | 19 | 36 | 43 | 57 |
| XTCE080F | 30 | 58 | 68 | 90 |
| XTCE095F | 34 | 66 | 79 | 104 |
| XTCE115G | 44 | 80 | 100 | 125 |
| XTCE150G | 50 | 97 | 115 | 152 |
| XTCE185L | 80 | 150 | 200 | 260 |
| XTCE225L | 100 | 175 | 230 | 300 |
| XTCE250L | 110 | 190 | 260 | 340 |
| XTCE300M | 130 | 225 | 290 | 390 |
| XTCE400M | 160 | 280 | 370 | 480 |
| XTCE500M | 220 | 390 | 500 | 680 |

Group Compensation, without Reactor, Open Version

| | | | | |
|----------|-----|------|------|------|
| XTCC012B | 7.5 | 12.5 | 16.7 | 20 |
| XTCC020C | 11 | 20 | 25 | 33.3 |
| XTCC025C | 15 | 25 | 33.3 | 40 |
| XTCC033D | 20 | 33.3 | 40 | 55 |
| XTCC050D | 25 | 50 | 65 | 85 |
| XTCR185L | 66 | 115 | 145 | 115 |
| XTCE300M | 85 | 150 | 195 | 150 |
| XTCE580N | 145 | 250 | 333 | 250 |

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Accessories

Auxiliary Contacts

Front mounted snap-on auxiliary contacts for **XT** contactors are available with screw or spring cage terminals in a variety of contact configurations.

Notes:

The 7 – 32A XTCE Contactors have positively driven contacts between the integrated auxiliary contact and the auxiliary contact module as well as within the auxiliary contact modules.

The 40 – 65A XTCE Contactors have positively driven contacts within the auxiliary

contact module. 6 auxiliary contacts are possible with a combination of side mounted and front mount auxiliary contacts.

Frame B – C contactors with 1NC built-in auxiliary are mirror contacts (XTCE...B01_ – XTCE...C01_).

B

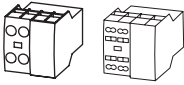




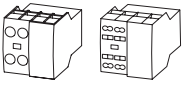


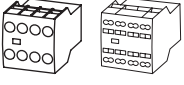






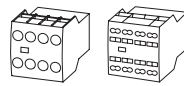

Table B-71. XTCE and XTCS Auxiliary Contact Overview

| Frame | A | B | C | D | F | G | L – R |
|-----------------------------|---|--|------------------------------------|---|---------------------------|---------------------------|-----------------------------|
| Catalogue Numbers | XTMC6A... – XTMC9A... | XTCE007B... – XTCE015B... | XTCE018C... – XTCE032C... | XTCE040D00_ – XTCE065D00_ | XTCE080F00_ – XTCE095F00_ | XTCE115G00_ – XTCE150G00_ | XTCE185L22_ – XTCEC20R22_ ① |
| Contactor Width | 45 mm | 45 mm | 45 mm | 55 mm | 90 mm | 90 mm | Various |
| Built-In Auxiliary | 1NO or 1NC | 1NO or 1NC | 1NO or 1NC | — | — | — | 2NO-2NC |
| Contact Sequence | | | | | | | |
| Front (Top) Mount Auxiliary | <p>2-Pole & 4-Pole (Screw or Spring Cage):</p> | <p>Standard 2-Pole & 4-Pole Versions (Screw or Spring Cage):</p> <p>Tall Version (Screw Only):</p> | | <p>2-Pole (Screw Only):</p> <p>4-Pole (Screw or Spring Cage):</p> | | | N/A |
| Side Mount Auxiliary | N/A | N/A | <p>2-Pole (Screw Only):</p> | <p>2-Pole (Screw or Spring Cage):</p> | | | |

① Frame L – R auxiliary contacts also apply to XTCS185L... – XTCS500M... contactors.

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Table B-72. Auxiliary Contacts







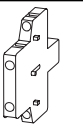






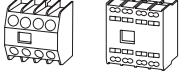







| | Conventional Thermal Current, Open at 60°C $I_{th} = I_e$, AC-1 in Amps | Poles | Contact Configuration | Circuit Symbol | Pkg. Qty. | Screw Terminals | Spring Cage Terminals | Price ① |
|---|--|-------|------------------------------------|---|-----------|------------------|-----------------------|------------|
| | | | | | | Catalogue Number | Catalogue Number | |
| Frame B – C — Front (Top) Mount | | | | | | | | |
|  | 16 | 2 | 2NO |  | 5 | XTCEXFAC20 | XTCEXFACC20 | |
| | 16 | 2 | 1NO-1NC |  | 5 | XTCEXFAC11 | XTCEXFACC11 | |
| | 16 | 2 | 2NC |  | 5 | XTCEXFAC02 | XTCEXFACC02 | |
| | 16 | 2 | 1NO _E -1NC _L |  | 5 | XTCEXFALC11 ② | XTCEXFALCC11 ② | |
|  | 16 | 2 | 1NO-1NC |  | 5 | XTCEXFDC11 ③ | XTCEXFDC11 ③ | |
| | 16 | 2 | 2NC |  | 5 | XTCEXFCC02 ③ | XTCEXFCC02 ③ | |
|  | 16 | 4 | 4NO |  | 5 | XTCEXFAC40 | XTCEXFACC40 | |
| | 16 | 4 | 3NO-1NC |  | 5 | XTCEXFAC31 | XTCEXFACC31 | |
| | 16 | 4 | 2NO-2NC |  | 5 | XTCEXFAC22 | XTCEXFACC22 | |
| | 16 | 4 | 1NO-3NC |  | 5 | XTCEXFAC13 | XTCEXFACC13 | |
| | 16 | 4 | 4NC |  | 5 | XTCEXFAC04 | XTCEXFACC04 | |
| | 16 | 4 | 1NO _E -1NC _L |  | 5 | XTCEXFCLC22 ② | XTCEXFCLCC22 ② | |
|  | 16 | 4 | 2NO-2NC |  | 5 | XTCEXFCC22 ③ | XTCEXFCC22 ③ | |

① Orders must be placed in multiples of package quantity listed.

② 1 early-make contact (1NO_E), 1 late-break contact (1NC_L).

③ To avoid duplicate terminal numbers in contact sequence, these auxiliary contacts should only be used with contactors having a built-in 1NO contact (XTCE...B10_, XTCE...C10_).

Table B-72. Auxiliary Contacts (Continued)

| | Conventional Thermal Current, Open at 60°C I _{th} = I _e , AC-1 in Amps | Poles | Contact Configuration | Circuit Symbol | Pkg. Qty. | Screw Terminals Catalogue Number | Spring Cage Terminals Catalogue Number | Price ① |
|---|--|-------|------------------------------------|---|-----------|-------------------------------------|---|------------|
| Frame B – C — Front (Top) Mount — Tall Version ③ | | | | | | | | |
|  | 16 | 2 | 2NO |  | 5 | XTCEXFATC20 | — | |
| | 16 | 2 | 1NO-1NC |  | 5 | XTCEXFATC11 | — | |
| | 16 | 2 | 2NC |  | 5 | XTCEXFATC02 | — | |
|  | 16 | 4 | 2NO-2NC |  | 5 | XTCEXFATC22 | — | |
| Frame C — Side Mount | | | | | | | | |
|  | 10 | 2 | 1NO-1NC |  | 1 | XTCEXSCC11 ④ | — | |
| Frame D – G | | | | | | | | |
|  | 16 | 2 | 2NO |  | 5 | XTCEXFBG20 | — | |
| | 16 | 2 | 1NO-1NC |  | 5 | XTCEXFAG11 | — | |
| | 16 | 2 | 1NO-1NC |  | 5 | XTCEXFBG11 | — | |
| | 16 | 2 | 2NC |  | 5 | XTCEXFBG02 | — | |
|  | 16 | 4 | 4NO-0NC |  | 5 | XTCEXFBG40 | XTCEXFBGC40 | |
| | 16 | 4 | 3NO-1NC |  | 5 | XTCEXFBG31 | XTCEXFBGC31 | |
| | 16 | 4 | 2NO-2NC |  | 5 | XTCEXFBG22 | XTCEXFBGC32 | |
| | 16 | 4 | 2NO-2NC |  | 5 | XTCEXFAG22 | XTCEXFAGC22 | |
| | 16 | 4 | 1NO-3NC |  | 5 | XTCEXFBG13 | XTCEXFBGC13 | |
| | 16 | 4 | 0NO-4NC |  | 5 | XTCEXFBG04 | XTCEXFBGC04 | |
| | 16 | 4 | 1NO _E -1NC _L |  | 5 | XTCEXFBG22 ② | XTCEXFBG22 ② | |

① Orders must be placed in multiples of package quantity listed.
 ② 1 early-make contact (1NO_E), 1 late-break contact (1NC_L).
 ③ Front (Top) Mount Tall Version is for use with Frame B Electrical Wire Bridges and Link Kits (see Pages B-54, B-55) and Toolless Plug Combination Connection Kits: XTCEXRLB, XTCEXSDLB, XTPAXTPCB, XTPAXTPCRB, XTPAX.

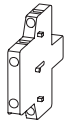



④ Can be mounted to the left side of contactor only. Can not be used in combination with front (top) mount auxiliary contacts or mechanical interlocks.
Notes:
 ■ Interlocked opposing contacts, to IEC/EN 60947-5-1 Annex L (positively driven), within the auxiliary contact modules (not NO (early make) and NC (late break) contacts) and for the built-in auxiliary contacts of the XTCE007B... – XTCE032C....

■ Auxiliary break contact can be used as mirror contact to IEC/EN 60947-4-1 Annex F (not NC (late break) contact).
 ■ No auxiliary contacts can be fitted between two contactors.

B

Contactors and Starters



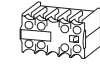


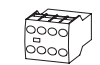


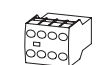











Table B-73. Side Mount Auxiliary Contacts for Frame D – R, 40 – 2000A

| | Conventional Free Air Thermal Current, I _{th} = I _e , AC-1 in Amps | Poles | Contact Configuration | Circuit Symbol | Pkg. Qty. | Screw Terminals | Spring Cage Terminals | Price |
|---|--|-------|------------------------------------|---|-----------|------------------|-----------------------|-------|
| | | | | | | Catalogue Number | Catalogue Number | |
| Frame D – R | | | | | | | | |
|  | 10 | 2 | 1NO-1NC |  | 1 | XTCEXSBN11 | XTCEXSBNC11 | |
| | 10 | 2 | 1NO _E -1NC _L |  | 1 | XTCEXSBLN11 ① | — | |
| | 10 | 2 | 1NO-1NC |  | 1 | XTCEXSCN11 ② | XTCEXSCNC11 ② | |

① 1 early-make contact (1NO_E), 1 late-break contact (1NC_L).

② To maintain proper terminal marking, XTCEXSCN_ should not be used with Frame D contactors and only used with Frame F – G contactors in combination with XTCEXSBN_.

Table B-74. Auxiliary Contacts Possible Combinations

| Frame Size | Catalogue Number | Contactor | Built-In Auxiliary | Front (Top) Mount | | Side Mount | Total Auxiliary Contacts Available |
|------------|---------------------------|---|--------------------|---|--|---|------------------------------------|
| | | | | 2-Pole | 4-Pole | 2-Pole | |
| A | XTMC6A... – XTMC9A... |  | 1NO or 1NC | 1 | — | — | 3 |
| | | | | — | 1 | — | 5 |
| | | | |  |  | — | — |
| B | XTCE007B... – XTCE015B... |  | 1NO or 1NC | 1 | — | — | 3 |
| | | | | — | 1 | — | 5 |
| | | | |  |  | — | — |
| C | XTCE018C... – XTCE032C... |  | 1NO or 1NC | 1 | — | — | 3 |
| | | | | — | 1 | — | 5 |
| | | | | — | — | 1 | 3 |
| | | | |  |  |  | — |
| D | XTCE040D00_ – XTCE065D00_ |  | — | 1 | — | 2 | 6 |
| | | | | — | 1 | 1 | 6 |
| | | | |  |  |  | — |
| F – G | XTCE080F00_ – XTCE150G00_ |  | — | 1 | — | 2 | 6 |
| | | | | — | 1 | 2 | 8 |
| | | | | — | — | 4 | 8 |
| | | | |  |  |  | — |
| L – R | XTCE185L22_ – XTCE20R22_ |  | 2NO-2NC | — | — | 2 | 8 |
| | | | | — | — |  | — |

Notes:

- Forced operation contact to IEC/EN 60947-5-1 Appendix L (positively driven), inside the auxiliary contact unit (not early close and late opening).
- Auxiliary normally closed contact can be used as mirror contact to IEC/EN 60947-4-1 Appendix F (not late opening).
- No auxiliary contacts can be fitted between two contactors.

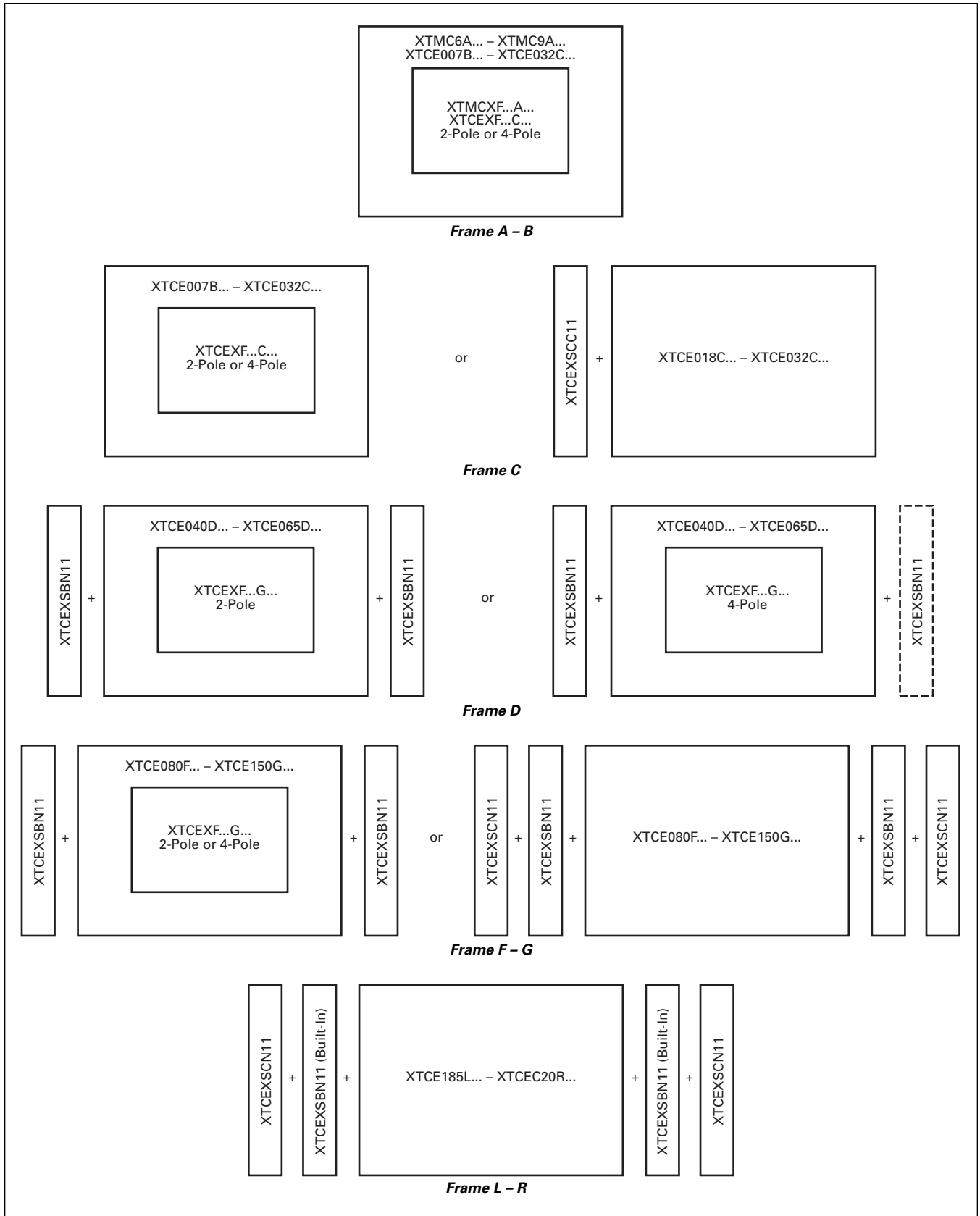


Figure B-37. Auxiliary Contact Combinations

Contactors and Starters

Suppressors

The switching of contactor coils can generate voltage transients that may cause arching on switch contacts and/or damage electronics on the control line. Either a RC or Varistor Suppressor is recommended in these types of applications. All XT DC contactor coils have built-in suppression.

B Varistor Suppressors clamp the voltage transient above the maximum coil voltage and are recommended when the level of the transient is known to not exceed the coil voltage. RC Suppressors slow and reduce the level of the voltage transient but do not clamp them at a specific level. The slowing of the transient can reduce electrical interference. These are recommended in applications where operating rates are high.

RC Suppressor ①②

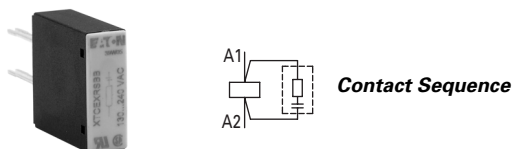


Table B-75. RC Suppressor

| Voltage | For Use with... | Pkg. Qty. | Catalogue Number | Price ③ |
|--|----------------------------------|----------------------|--|---------|
| 24 – 48 48 – 130 110 – 240 240 – 500 | XTCE007B – XTCE015B, XTCF020B | 10 10 10 10 | XTCEXRSBW XTCEXRSBA XTCEXRSBB XTCEXRSBC | |
| 24 – 48 110 – 130 130 – 240 240 – 500 | XTCE018C – XTCE032C | 10 10 10 10 | XTCEXRSCW XTCEXRSCA XTCEXRSCB XTCEXRSCC | |
| 24 – 48 110 – 130 130 – 240 240 – 500 | XTCE040D – XTCE095F | 10 10 10 10 | XTCEXRSFW XTCEXRSFA XTCEXRSFB XTCEXRSFC | |

- ① Note drop-out delay.
- ② For AC operated contactors, 50 – 60 Hz. DC operated contactors and XTCE165G_ and XTCE150G_ have a built-in suppressor circuit.
- ③ Orders must be placed in multiples of package quantity listed.

Varistor Suppressor ④⑤

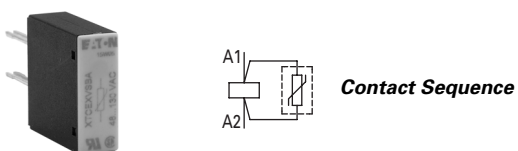


Table B-76. Varistor Suppressor

| Voltage | For Use with... | Pkg. Qty. | Catalogue Number | Price ⑥ |
|---|----------------------------------|----------------------|--|---------|
| 24 – 48 48 – 130 130 – 240 240 – 500 | XTCE007B – XTCE015B, XTCF020B | 10 10 10 10 | XTCEXVSBW XTCEXVSBA XTCEXVSBB XTCEXVSBC | |
| 24 – 48 48 – 130 130 – 240 240 – 500 | XTCE018C – XTCE032C | 10 10 10 10 | XTCEXVSCW XTCEXVSCA XTCEXVSCB XTCEXVSCC | |
| 24 – 48 48 – 130 130 – 240 240 – 500 | XTCE040D – XTCE095F | 10 10 10 10 | XTCEXVSFW XTCEXVSFA XTCEXVSFB XTCEXVSFC | |

- ④ Note drop-out delay.
- ⑤ For AC operated contactors, 50/60 Hz. DC operated contactors have a built-in suppressor.
- ⑥ Orders must be placed in multiples of package quantity listed.

Varistor Suppressor with Integrated LED ⑦⑧

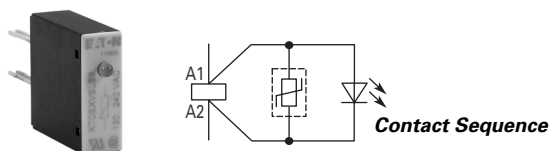


Table B-77. Varistor Suppressor

| Voltage AC | For Use with... | Pkg. Qty. | Catalogue Number | Price ⑨ |
|----------------------|---------------------|-----------|--------------------------|---------|
| 24 – 48 130 – 240 | XTCE007B – XTCE015B | 10 10 | XTCEXVSLBW XTCEXVSLBB | |
| 24 – 48 130 – 240 | XTCE018C – XTCE032C | 10 10 | XTCEXVSLCW XTCEXVSLCB | |
| 24 – 48 130 – 240 | XTCE040D – XTCE095F | 10 10 | XTCEXVSLFW XTCEXVSLFB | |

- ⑦ Note drop-out delay.
- ⑧ For AC operated contactors, 50/60 Hz. DC operated contactors have an integrated suppressor.
- ⑨ Orders must be placed in multiples of package quantity listed.

Free-Wheel Diode Suppressor ⑩

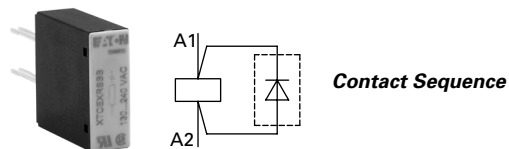


Table B-78. Free-Wheel Diode Suppressor

| Voltage DC | For Use with... | Pkg. Qty. | Catalogue Number | Price ⑪ |
|------------|----------------------------------|-----------|------------------|---------|
| 12 – 250 | XTCE007B – XTCE015B, XTCF020B | 10 | XTCEXDSB | |

- ⑩ In addition to the built-in suppressor circuit for DC actuated contactors. Prevents negative breaking voltage when contactors are used in combination with a safety PLC.
- ⑪ Orders must be placed in multiples of package quantity listed.

Voltage Indicator

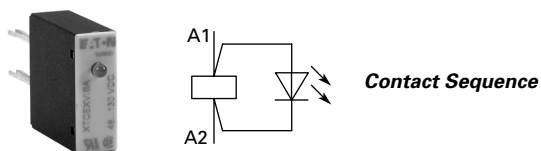


Table B-79. Voltage Indicator

| Voltage DC | For Use with... | Pkg. Qty. | Catalogue Number | Price ⑫ |
|----------------------------------|---|----------------|-------------------------------------|---------|
| 12 – 48 48 – 130 110 – 250 | XTCE007B – XTCE015B, XTCF020B | 10 10 10 | XTCEXVIBW XTCEXVIBA XTCEXVIBB | |
| 24 – 48 48 – 130 130 – 250 | XTCE018C – XTCE032C | 10 10 10 | XTCEXVICW XTCEXVICA XTCEXVICB | |
| 42 – 48 48 – 130 130 – 250 | DC operated: XTCE040D – XTCE095F AC/DC operated: XTCE115G – XTCE150G | 10 10 10 | XTCEXVIGW XTCEXVIGA XTCEXVIGB | |


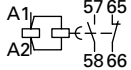
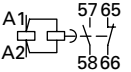
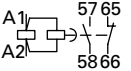
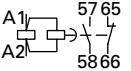
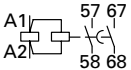
- ⑫ Orders must be placed in multiples of package quantity listed.

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Contactors and Starters

Electronic Timer Modules ①

Table B-80. Electronic Timer Modules for Frame B – C Contactors (7 – 32A)

| | Voltage | Contact Sequence | Timing Range | For Use with... | Pkg. Qty. | Catalogue Number | Price |
|---|--------------------|---|--------------|----------------------------|-----------|------------------|-------|
|  | On-Delayed | | | | | | |
| | 24V AC/DC |  | 0.05 s – 1 s | XTCE...B... XTCE...C... | 1 | XTCEXTEEC11T | |
| | 100 – 130V AC | | 0.5 – 10 s | | | XTCEXTEEC11A | |
| | 200 – 240V AC | | 5 s – 100 s | | | XTCEXTEEC11B | |
| | Off-Delayed | | | | | | |
| | 24V AC/DC |  | 0.05 s – 1 s | XTCE...B... XTCE...C... | 1 | XTCEXTED1C11T | |
| | 100 – 130V AC | | | | | XTCEXTED1C11A | |
| | 200 – 230V AC | | | | | XTCEXTED1C11B | |
| | 24V AC/DC |  | 0.5 – 10 s | XTCE...B... XTCE...C... | 1 | XTCEXTED10C11T | |
| | 100 – 130V AC | | | | | XTCEXTED10C11A | |
| | 200 – 240V AC | | | | | XTCEXTED10C11B | |
| | 24V AC/DC |  | 5 s – 100 s | XTCE...B... XTCE...C... | 1 | XTCEXTED100C11T | |
| | 100 – 130V AC | | | | | XTCEXTED100C11A | |
| | 200 – 240V AC | | | | | XTCEXTED100C11B | |
| | Star-Delta | | | | | | |
| | 24V AC/DC |  | 1 s – 30 s | XTCE...B... XTCE...C... | 1 | XTCEXTEYC20T | |
| | 100 – 130V AC | | | | | XTCEXTEYC20A | |
| | 200 – 240V AC | | | | | XTCEXTEYC20B | |

Sealable Shroud

| | | | | | | |
|---|---|--|------------------------------------|---|-------------|--|
|  | — | Transparent sealable shroud used to protect electronic timer modules from unwanted access. | XTCEXTEE, XTCEXTED, XTCEXTEY | 1 | XTCEXTESHRD | |
|---|---|--|------------------------------------|---|-------------|--|

① Front (Top) mounted timer modules for use with XTCE...B and XTCE...C contactors. Can not be combined with top mount auxiliary contacts, XTCEXF...C__.

Table B-81. XTCR Reversing Contactor Components

| Qty | Frame | B | C | D | F | G |
|-----|----------------------|-------------|-------------|-------------|-------------|-------------|
| 2 | Contactors | XTCE...B01_ | XTCE...C01_ | XTCE...D00_ | XTCE...F00_ | XTCE...G00_ |
| 2 | Auxiliary Contact | XTCEXFAC20 | XTCEXFAC20 | XTCEXFBG11 | XTCEXFBG11 | XTCEXFBG11 |
| 1 | Mechanical Interlock | XTCEXMLB | XTCEXMLC | XTCEXMLD | XTCEXMLG | XTCEXMLG |
| 1 | Reversing Link Kit | XTCEXRLB | XTCEXRLC | XTCEXRLD | XTCEXRLG | XTCEXRLG |

Discount Symbol MC7

B

Contactors and Starters

Mechanical Interlock ①

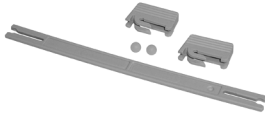


Table B-82. Mechanical Interlock

| | For Use with... | Pkg. Qty. | Catalogue Number | Price ② |
|--|-------------------------------|-----------|------------------|---------|
| | XTCE007B – XTCE015B, XTCE020B | 5 | XTCEXMLB | |
| | XTCE018C – XTCE032C | 1 | XTCEXMLC | |
| | XTCE040D – XTCE065D | 1 | XTCEXMLD | |
| | XTAE080F – XTCE150G | 1 | XTCEXMLG ③ | |
| | XTCE185L – XTCE500M | 1 | XTCEXMLM | |
| | XTCE580N – XTCEC10N | 1 | XTCEXMLN ③ | |

① For two contactors with AC or DC operated magnet system which are horizontally or vertically mounted. For B – G frames, mechanical lifespan is 2.5 x 10⁶ operations and the distance between contactors is 0 mm. For L – N frames, mechanical lifespan is 5 x 10⁶ operations and no auxiliary contact can be mounted between the mechanical interlock and the contactor — the distance between contactors is 15 mm.

② Orders must be placed in multiples of package quantity listed.

③ XTCEXMLG and XTCEXMLN consist of an interlock element and mounting plate.

Reversing Link Kits



Main current wiring for reversing combinations. Includes Paralleling Bridge and Reversing Bridge. Does not include Mechanical Interlock, see **Table B-82**.

Table B-83. Reversing Link Kits

| | For Use with... | Pkg. Qty. | Catalogue Number | Price |
|--|---------------------|-----------|------------------|-------|
| | XTCE007B – XTCE015B | 1 | XTCEXRLB ④ | |
| | XTCE018C – XTCE032C | 1 | XTCEXRLC | |
| | XTCE040D – XTCE065D | 1 | XTCEXRLD | |
| | XTCE080F – XTCE095F | 1 | XTCEXRLE | |
| | XTCE115G – XTCE150G | 1 | XTCEXRLE | |
| | XTCE185L – XTCE250L | 1 | XTCEXRLL | |
| | XTCE300M – XTCE400M | 1 | XTCEXRML400 | |

④ Also includes Interlocking Bridge (XTCEXLBB). The following control cables are integrated for electrical interlock: K1M: A1 – K2M: 21; K1M: 21 – K2M: A1; K1M: A2 – K2M: A2.

Star-Delta (Wye-Delta) Link Kits



Main current wiring for star-delta (wye-delta) combinations. Includes Paralleling Bridge, Reversing Bridge, and Star-Delta Bridge. Does not include Mechanical Interlock, see **Table B-82**.

Table B-84. Star-Delta (Wye-Delta) Link Kits

| | For Use with... | Pkg. Qty. | Catalogue Number | Price |
|--|---------------------|-----------|------------------|-------|
| | XTCE007B – XTCE015B | 1 | XTCEXSDLB ⑤ | |
| | XTCE018C – XTCE032C | 1 | XTCEXSDLC | |
| | XTCE040D – XTCE065D | 1 | XTCEXSDLD | |
| | XTCE080F – XTCE095F | 1 | XTCEXSDLF | |
| | XTCE115G – XTCE150G | 1 | XTCEXSDLG | |
| | XTCE185L – XTCE225L | 1 | XTCEXSDLL225 | |
| | XTCE250L | 1 | XTCEXSDLL250 | |
| | XTCE300M – XTCE400M | 1 | XTCEXSDLM400 | |

⑤ Also includes Interlocking Bridge (XTCEXLBB). The following control cables are integrated for electrical interlock: K1M: A1 – K2M: 21; K1M: 21 – K2M: A1; K1M: A2 – K2M: A2.

Paralleling Bridge



Component part of Reversing Link Kit (XTCEXRL_). Parallels the phases on the line-side of two contactors.

Table B-85. Paralleling Bridge

| | For Use with... | Pkg. Qty. | Catalogue Number | Price ⑥ |
|--|---------------------|-----------|------------------|---------|
| | XTCE007B – XTCE015B | 20 | XTCEXPBB | |
| | XTCE018C – XTCE032C | 20 | XTCEXPBC | |
| | XTCE040D – XTCE065D | 10 | XTCEXPBD | |
| | XTCE080F – XTCE150G | 10 | XTCEXPBG | |

⑥ Orders must be placed in multiples of package quantity listed.

Reversing Bridge



Component part of Reversing Link Kit (XTCEXRL_). Reverses the phases on the load-side of two contactors.

Table B-86. Reversing Bridge

| | For Use with... | Pkg. Qty. | Catalogue Number | Price ⑦ |
|--|---------------------|-----------|------------------|---------|
| | XTCE007B – XTCE015B | 20 | XTCEXRBB | |
| | XTCE018C – XTCE032C | 20 | XTCEXRBC | |
| | XTCE040D – XTCE065D | 10 | XTCEXRBD | |
| | XTCE080F – XTCE150G | 10 | XTCEXRBB | |

⑦ Orders must be placed in multiples of package quantity listed.

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Electrical Interlocking Bridge

Connects NC auxiliary contact with A2 terminal of other contactor in reversing application. Included in XTCEXRLB reversing link kit.

Table B-87. Electrical Interlocking Bridge

| For Use with... | Pkg. Qty. | Catalogue Number | Price ^① |
|---------------------|-----------|------------------|--------------------|
| XTCE007B – XTCE015B | 20 | XTCEXLBB | |

① Orders must be placed in multiples of package quantity listed.

Star-Delta (Wye Delta) Bridge



Component part of Star-Delta Link Kit (XTCEXSDL_). Combines the 3-phases on the line side of shorting contactor.

Table B-88. Star-Delta (Wye Delta) Bridge

| | For Use with... | Pkg. Qty. | Catalogue Number | Price ^② |
|--|---------------------|-----------|------------------------|--------------------|
| | XTCE007B – XTCE015B | 20 | XTCEXSDBB ^③ | |
| | XTCE018C – XTCE032C | 20 | XTCEXSDBC | |
| | XTCE040D – XTCE065D | 10 | XTCEXSDBD | |
| | XTCE080F – XTCE150G | 1 | XTCEXSDBG | |
| | XTCE185L – XTCE400M | 1 | XTCEXSDB400 | |
| | XTCE500M | 1 | XTCEXSDB500 | |

② Orders must be placed in multiples of package quantity listed.

③ Frame B is tool-less connection type.

Connector ^④



Table B-89. Connector

| | For Use with... | Pkg. Qty. | Catalogue Number | Price ^⑤ |
|--|---------------------|-----------|------------------|--------------------|
| | XTCE007B – XTCE032C | 50 | XTCEXCNC | |
| | XTCE040D – XTCE150G | 10 | XTCEXCNG | |

④ For mechanically arranging contactors in combinations. Distance between contactors is 0 mm.

⑤ Orders must be placed in multiples of package quantity listed.

Add-On Fourth Pole



Add-On Fourth Pole for use with Frame D contactors. Only for AC-1 load. Up to two auxiliary contacts can be fitted.

Table B-90. Fourth Pole

| | For Use with... | AC-1 (A) Open/Enclosed | Pkg. Qty. | Catalogue Number | Price |
|--|-----------------|------------------------|-----------|------------------|-------|
| | XTCE040D00_ | 35/30A | 1 | XTCEX4P35D | |
| | XTCE050D00_ | 75/60A | 1 | XTCEX4P75D | |
| | XTCE065D00_ | | | | |

Parallel Link ^{⑥⑦⑧}



For using one contactor per phase. Each package comes with (2) links for line: load.

Table B-91. Parallel Link

| | For Use with... | Pkg. Qty. | Catalogue Number | Price ^⑨ |
|--|---------------------|-----------|------------------|--------------------|
| | XTCE007B – XTCE015B | 5 | XTCEXPLKB | |
| | XTCE018C – XTCE032C | 5 | XTCEXPLKC | |
| | XTCE040D – XTCE065D | 1 | XTCEXPLKD | |
| | XTCE080F – XTCE150G | 1 | XTCEXPLKG | |
| | XTCE185L | 1 | XTCEXPLKL185 | |

⑥ Fourth Pole can be broken off: 4-Pole: I_{th} = 60A; 3-Pole: I_{th} = 50A.

⑦ AC-1 current carrying capacity of the contactor increases by a factor of 2.5. For XTCEXPLKL185, one shroud is included for protection against accidental contact

⑧ Protected against accidental contact in accordance with IEC 536.

⑨ Orders must be placed in multiples of package quantity listed.

B




Contactors and Starters

B

3-Phase Commoning Link

Main current wiring that parallels and commons the line side of multiple contactors. For use with Frame B contactors only. Protected against accidental contact, short-circuit proof. Max voltage (U_e) = 690V, Max Current (I_e) = 63A.

Table B-92. 3-Phase Commoning Link


| | Notes | Pkg. Qty. | Catalogue Number | Price ^① |
|---|--|-----------|------------------|--------------------|
|  | Suitable for 3 contactors, length = 135 mm | 5 | XTCEXCLK3B | |
|  | Suitable for 4 contactors, length = 180 mm | 5 | XTCEXCLK4B | |
|  | Suitable for 5 contactors, length = 225 mm | 5 | XTCEXCLK5B | |

① Orders must be placed in multiples of package quantity listed.

Incoming Terminal

Terminal for use with three-phase commoning link XTCEXCLK_B.

Table B-93. Incoming Terminal


| | For Use with... | Pkg. Qty. | Catalogue Number | Price ^② |
|--|---------------------|-----------|------------------|--------------------|
|  | XTCE007B – XTCE015B | 5 | XTCEXITB | |

② Orders must be placed in multiples of package quantity listed.

Terminal Lug Assembly

For connection of: round conductor, flexible and stranded, flat strip conductor. With control circuit terminal. See **Table B-114, Page B-73** for terminal capacities.

Table B-94. Terminal Lug Assembly

| | For Use with... | Pkg. Qty. | Catalogue Number | Price |
|---|---------------------|-----------|------------------|-------|
|  | XTCE185L – XTCE225L | 1 | XTCEXTLA225 | |
| | XTCE250L – XTCE400M | 1 | XTCEXTLA400 | |

Terminal Lug Kit — Set of (3) Lugs




Table B-95. Set of (3) Lugs

| For Use with... | Description | Pkg. Qty. | Catalogue Number | Price |
|-----------------|--|-----------|------------------|-------|
| XTCE500M | Set of 3 Lugs #4-500MCM 2-Phase Cu/AI 500A | 1 | XTCEXTL500 | |
| XTCE650N | Set of 3 Lugs #2-500MCM 2-Phase Cu/AI 650A | 1 | XTCEXTL650 | |
| XTCE820N | Set of 3 Lugs #2-500MCM 4-Phase Cu/AI 820A | 1 | XTCEXTL820 | |

Terminal Flat Bar

For connection of a flat strip conductor. Comes with control circuit terminal (Consisting of 3 flat strip conductor terminals).

Table B-96. Terminal Flat Bar

| | For Use with... | Pkg. Qty. | Catalogue Number | Price |
|--|---------------------|-----------|------------------|-------|
|  | XTCE500M – XTCE650N | 1 | XTCEXTFB650 | |
| | XTCE750N – XTCE820N | 1 | XTCEXTFB820 | |

Note: Not UL Listed.

Control Wire Terminal Extension



Fits to Frame F – G contactors and allows connection of control wire to power terminals.

Table B-97. Control Wire Terminal Extension


| For Use with... | Pkg. Qty. | Catalogue Number | Price ^③ |
|---------------------|-----------|------------------|--------------------|
| XTCE080F – XTCE150G | 10 | XTCEXTCWG | |

③ Orders must be placed in multiples of package quantity listed.

Terminal Shrouds

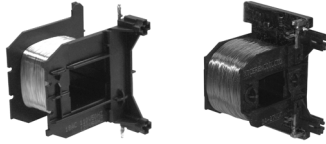
Protection against direct contact with connection lugs when touched vertically from the front.

Table B-98. Terminal Shrouds

| | For Use with... | Pkg. Qty. | Catalogue Number | Price |
|---|---------------------|-----------|------------------|-------|
|  | XTCE185L – XTCE400M | 1 | XTCEXTS400 | |
| | XTCE500M | 1 | XTCEXTS500 | |
| | XTCE580N – XTCE650N | 1 | XTCEXTS650 | |
| | XTCE750N – XTCEC10N | 1 | XTCEXTS820 | |

Discount Symbol **MC7**

Renewal Parts



B

Table B-99. Replacement Coils

| Voltage | Coil Suffix | Catalogue Number | Price |
|--|-------------------------|---|-------|
| Frame C | | | |
| 110/50 120/60 110 – 130V DC 220/50 240/60 200 – 240V DC | A AD B BD | XTCERENCOILCA XTCERENCOILCAD XTCERENCOILCB XTCERENCOILCBD | |
| 415/50 480/60 550/50 600/60 208/60 230/50 | C D E F | XTCERENCOILCC XTCERENCOILCD XTCERENCOILCE XTCERENCOILCF | |
| 190/50 220/60 240/50 277/60 380/50 440/60 400/50 | G H L N | XTCERENCOILCG XTCERENCOILCH XTCERENCOILCL XTCERENCOILCN | |
| 380/60 12/50 12/60 12 – 14V DC 24/50 24/60 | P R RD T | XTCERENCOILCP XTCERENCOILCR XTCERENCOILCRD XTCERENCOILCT | |
| 24 – 27V DC 24/50 42/50 48/60 48 – 60V DC 48/50 | TD U W WD Y | XTCERENCOILCTD XTCERENCOILCU XTCERENCOILCW XTCERENCOILCWD XTCERENCOILCY | |
| Frame D | | | |
| 110/50 120/60 110 – 130V DC 220/50 240/60 200 – 240V DC | A AD B BD | XTCERENCOILDA XTCERENCOILDAD XTCERENCOILDB XTCERENCOILDBD | |
| 415/50 480/60 550/50 600/60 208/60 230/50 | C D E F | XTCERENCOILDC XTCERENCOILDD XTCERENCOILDE XTCERENCOILDF | |
| 190/50 220/60 240/50 277/60 380/50 440/60 400/50 | G H L N | XTCERENCOILDG XTCERENCOILDH XTCERENCOILDL XTCERENCOILDN | |
| 380/60 12/50 12/60 12 – 14V DC 24/50 24/60 | P R RD T | XTCERENCOILDP XTCERENCOILDR XTCERENCOILDRD XTCERENCOILDT | |
| 24 – 27V DC 24/50 42/50 48/60 48 – 60V DC 48/50 | TD U W WD Y | XTCERENCOILDTD XTCERENCOILDU XTCERENCOILDW XTCERENCOILDWD XTCERENCOILDY | |
| Frame F | | | |
| 110/50 120/60 110 – 130V DC 220/50 240/60 200 – 240V DC | A AD B BD | XTCERENCOILFA XTCERENCOILFAD XTCERENCOILFB XTCERENCOILFBD | |
| 415/50 480/60 550/50 600/60 208/60 230/50 | C D E F | XTCERENCOILFC XTCERENCOILFD XTCERENCOILFE XTCERENCOILFF | |
| 190/50 220/60 240/50 277/60 380/50 440/60 400/50 | G H L N | XTCERENCOILFG XTCERENCOILFH XTCERENCOILFL XTCERENCOILFN | |
| 380/60 12/50 12/60 24/50 24/60 24 – 27V DC | P R T TD | XTCERENCOILFP XTCERENCOILFR XTCERENCOILFT XTCERENCOILFTD | |

| Voltage | Coil Suffix | Catalogue Number | Price |
|--|-------------------------|---|-------|
| Frame F (Continued) | | | |
| 24/50 42/50 48/60 48 – 60V DC 48/50 | U W WD Y | XTCERENCOILFU XTCERENCOILFW XTCERENCOILFWD XTCERENCOILFY | |
| Frame G | | | |
| 100 – 120V 50/60 110 – 130V DC 190 – 240V 50/60 200 – 240V DC 480 – 500V 50/60 | A AD B BD C | XTCERENCOILGA XTCERENCOILGAD XTCERENCOILGB XTCERENCOILGBD XTCERENCOILGC | |
| 380 – 440V 50/60 24/50 24/60 24 – 27V DC 42 – 48V 50/60 48 – 60V DC | L T TD W WD | XTCERENCOILGL XTCERENCOILGT XTCERENCOILGTD XTCERENCOILGW XTCERENCOILGWD | |
| Frame L ① | | | |
| 110 – 250V AC/DC 250 – 500V 40 – 60 24 – 48V DC 48 – 110V AC/DC | A C TD Y | XTCERENCOILLA XTCERENCOILLC XTCERENCOILLTD XTCERENCOILLY | |
| Frame M ① | | | |
| 110 – 250V AC/DC 250 – 500V 40 – 60 24 – 48V DC 48 – 110V AC/DC | A C TD Y | XTCERENCOILMA XTCERENCOILMC XTCERENCOILMTD XTCERENCOILMY | |
| Frame N ① | | | |
| 110 – 250V AC/DC 250 – 500V 40 – 60 48 – 110V AC/DC | A C Y | XTCERENCOILNA XTCERENCOILNC XTCERENCOILNY | |

① Electronic modules including coils.

Table B-100. Replacement Contact Kits

| For Use with... | Catalogue Number | Price |
|---|---|-------|
| XTCE040D – XTCE065D XTCE185L – XTCE250L XTCE300M – XTCE500M | XTCERENCONTACTD XTCERENCONTACTL XTCERENCONTACTM | |

Table B-101. Replacement Vacuum Tube Assembly

| For Use with... | Catalogue Number | Price |
|--|--|-------|
| XTCE580N XTCE650N XTCE750N XTCE820N | XTCERENVACT580 XTCERENVACT650 XTCERENVACT750 XTCERENVACT820 | |

Table B-102. Replacement Arc Chambers

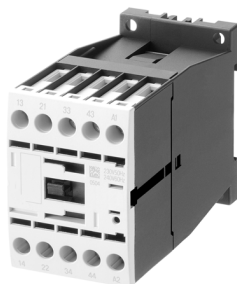
| For Use with... | Catalogue Number | Price |
|----------------------------------|---|-------|
| XTCE185L XTCE225L XTCE250L | XTCERENARC185 XTCERENARC225 XTCERENARC250 | |
| XTCE300M XTCE400M XTCE500M | XTCERENARC300 XTCERENARC400 XTCERENARC500 | |

Discount Symbol MC17

Technical Data and Specifications

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Frame B XTCE Contactor

XT Contactors

Frame B

Table B-103. XT Contactors Technical Data and Specifications — Frame B

| Description | XTCE007B | XTCE009B | XTCE012B, XTCE020B | XTCE015B |
|---|--|-------------|--------------------|-------------|
| General | | | | |
| Standards | IEC/EN 60947, VDE 0660, UL, CSA, CCC, RoHS | | | |
| Weights in kg [Lb] | | | | |
| AC operated | 0.23 [0.51] | 0.23 [0.51] | 0.23 [0.51] | 0.23 [0.51] |
| DC operated | 0.28 [0.62] | 0.28 [0.62] | 0.28 [0.62] | 0.28 [0.62] |
| Mechanical Life | 10,000,000 | 10,000,000 | 10,000,000 | 10,000,000 |
| Mechanical Operating Frequency (ops/hr) | | | | |
| AC operated | 9000 | 9000 | 9000 | 5000 |
| DC operated | 9000 | 9000 | 9000 | 5000 |
| Electrical Life | See Curves, Page B-80 | | | |
| Electrical Operating Frequency (ops/hr) — see Curve, Page B-80 | | | | |
| AC-1; 400V I_e | 800 | 800 | 800 | 800 |
| AC-3; 400V I_e | 1000 | 1000 | 1000 | 1000 |
| AC-4; 400V I_e | 300 | 300 | 300 | 300 |
| Climatic Proofing | Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclical, to IEC 60068-2-30 | | | |
| Insulation Voltage (U_i) V AC | 690 | 690 | 690 | 690 |
| Impulse Withstand Voltage (U_{imp}) V AC | 8000 | 8000 | 8000 | 8000 |
| Operational Voltage (U_e) V AC | 690 | 690 | 690 | 690 |
| Safe Isolation to VDE 0106 Part 101 and Part 101/A1 | | | | |
| Between coil and contacts (V AC) | 400 | 400 | 400 | 400 |
| Between contacts (V AC) | 400 | 400 | 400 | 400 |
| Making Capacity Up to 690V (Amps) ^② | 112 | 112 | 144 | 155 |
| Breaking Capacity (Amps) | | | | |
| 220/230V | 70 | 90 | 120 | 124 |
| 380/400V | 70 | 90 | 120 | 124 |
| 500V | 50 | 70 | 100 | 100 |
| 660/690V | 40 | 50 | 70 | 70 |
| Short-Circuit Protection Rating Maximum Fuse | | | | |
| Type 2 Coordination ^① | | | | |
| 400V; gG/gL 500V | 20 | 20 | 20 | 20 |
| 690V; gG/gL 690V | 16 | 16 | 20 | 20 |
| Type 1 Coordination ^① | | | | |
| 400V; gG/gL 500V | 35 | 35 | 35 | 63 |
| 690V; gG/gL 690V | 20 | 20 | 20 | 50 |
| Degree of Protection | IP20 | | | |
| Protection against Direct Contact when Actuated from Front (IEC 536) | Finger- and back-of-hand proof | | | |

^① IEC 60947 Standard.

^② Rated operational current: Making and breaking conditions to DC-13, L/R constant as stated.

Table B-103. XT Contactors Technical Data and Specifications — Frame B (Continued)

| Description | XTCE007B | XTCE009B | XTCE012B, XTCF020B | XTCE015B |
|---|--|--|--|--|
| General (Continued) | | | | |
| Terminal Capacity Main Cable — Screw Terminals Solid (mm ²) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 |
| Terminal Capacity Control Circuit Cable — Screw Terminals Solid (mm ²) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) | 1 x (0.75 – 4) 2 x (0.75 – 2.5) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 |
| Main Cable and Control Circuit Cable Connection Screw/Bolt Tightening torque Nm Lb-in | M3.5 1.2 10.6 | M3.5 1.2 10.6 | M3.5 1.2 10.6 | M3.5 1.2 10.6 |
| Tools Main and Control circuit cable — Screw Terminals Posidrive screwdriver Standard screwdriver | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 |
| Terminal Capacity Main Circuit Cable — Spring Cage Terminals Solid (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | — — |
| Flexible (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | — — |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | — — |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | — |
| Terminal Capacity Control Circuit Cable — Spring Cage Terminals Solid (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | — — |
| Flexible (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | — — |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 1 x (0.75 – 2.5) | — — |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | — |
| Tools Main and Control Circuit Cable — Spring Cage Terminals Stripping Length (mm) Screwdriver blade width (mm) | 10 3.5 | 10 3.5 | 10 3.5 | 10 3.5 |
| Mounting Position, AC and DC Operated | | | | |
| Ambient Temperature Open Enclosed | -25 to 60°C [-13 to 140°F] -25 to 40°C [-13 to 104°F] | -25 to 60°C [-13 to 140°F] -25 to 40°C [-13 to 104°F] | -25 to 60°C [-13 to 140°F] -25 to 40°C [-13 to 104°F] | -25 to 60°C [-13 to 140°F] -25 to 40°C [-13 to 104°F] |
| Ambient Storage Temperature | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] |
| Environmental | | | | |
| Mechanical Shock Resistance (IEC/EN 60068-2-27) Half-sinusoidal shock 10 mS Main contact — NO Contact Auxiliary contact — NO Contact Auxiliary contact — NC Contact | 10g 7g 5g | 10g 7g 5g | 10g 7g 5g | 10g 7g 5g |
| Overvoltage Category/Pollution degree | III/3 | III/3 | III/3 | III/3 |

B

Contactors and Starters

Frame C – D

Table B-104. XT Contactors Technical Data and Specifications — Frame C – D

| Description | XTCE018C | XTCE025C | XTCE032C | XTCE040D | XTCE050D | XTCE065D |
|---|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| General | | | | | | |
| Standards | IEC/EN 60947, VDE 0660, UL, CSA, CCC, RoHS | | | | | |
| Weights in kg [Lb] | | | | | | |
| AC operated | 0.42 [0.93] | 0.42 [0.93] | 0.42 [0.93] | 0.9 [2.0] | 0.9 [2.0] | 0.9 [2.0] |
| DC operated | 0.48 [1.06] | 0.48 [1.06] | 0.48 [1.06] | 1.1 [2.4] | 1.1 [2.4] | 1.1 [2.4] |
| Mechanical Life | 10,000,000 | 10,000,000 | 10,000,000 | 10,000,000 | 10,000,000 | 10,000,000 |
| Mechanical Operating Frequency (ops/hr) | | | | | | |
| AC operated | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| DC operated | 5000 | 5000 | 5000 | 5000 | 5000 | 5000 |
| Electrical Mechanical Operating Frequency (ops/hr) — see Curve, Page B-80 | | | | | | |
| AC-1; 400V I _e | 800 | 800 | 800 | 800 | 800 | 800 |
| AC-3; 400V I _e | 800 | 800 | 800 | 800 | 800 | 800 |
| AC-4; 400V I _e | 300 | 300 | 300 | 300 | 300 | 300 |
| Climatic Proofing | Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60 068-2-30 | | | | | |
| Insulation Voltage (U _i) V AC | 690 | 690 | 690 | 690 | 690 | 690 |
| Impulse Withstand Voltage (U _{imp}) V AC | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |
| Operating Voltage (U _e) V AC | 690 | 690 | 690 | 690 | 690 | 690 |
| Safe Isolation to VDE 0106 Part 101 and Part 101/A1 | | | | | | |
| Between coil and contacts (V AC) | 440 | 440 | 440 | 440 | 440 | 440 |
| Between contacts (V AC) | 238 | 440 | 440 | 440 | 440 | 440 |
| Making Capacity (Amps) | 238 | 350 | 384 | 560 | 700 | 910 |
| Breaking Capacity (Amps) | | | | | | |
| 220/230V | 170 | 250 | 320 | 400 | 500 | 650 |
| 380/400V | 170 | 250 | 320 | 400 | 500 | 650 |
| 500V | 170 | 250 | 320 | 400 | 500 | 650 |
| 660/690V | 120 | 150 | 180 | 250 | 320 | 370 |
| Short-Circuit Protection Rating Maximum Fuse (Amps) | | | | | | |
| Type 2 Coordination ① | | | | | | |
| 400V; gG/gL 500V | 25 | 35 | 63 | 63 | 80 | 125 |
| 690V; gG/gL 690V | 25 | 35 | 35 | 50 | 63 | 80 |
| Type 1 Coordination ① | | | | | | |
| 400V; gG/gL 500V | 63 | 100 | 125 | 125 | 160 | 250 |
| 690V; gG/gL 690V | 50 | 50 | 63 | 80 | 80 | 100 |
| Degree of Protection | IP00 | | | | | |
| Protection against Direct Contact when Actuated from Front (IEC 536) | Finger- and back-of-hand proof | | | | | |
| Terminal Capacity Main Cable — Screw Terminals | | | | | | |
| Solid (mm ²) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (0.75 – 16) 2 x (0.75 – 10) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (0.75 – 16) 2 x (0.75 – 10) | 1 x (2.5 – 35) 2 x (2.5 – 25) | 1 x (2.5 – 35) 2 x (2.5 – 25) | 1 x (2.5 – 35) 2 x (2.5 – 25) |
| Stranded (mm ²) | 1 x 16 | 1 x 16 | 1 x 16 | 1 x (16 – 50) 2 x (16 – 35) | 1 x (16 – 50) 2 x (16 – 35) | 1 x (16 – 50) 2 x (16 – 35) |
| Solid or Stranded (AWG) | 18 – 6 | 18 – 6 | 18 – 6 | 12 – 2 | 12 – 2 | 12 – 2 |
| Flat Conductor (Number of Segments x Width x Thickness) (mm) | — | — | — | 2 x (6 x 9 x 0.8) | 2 x (6 x 9 x 0.8) | 2 x (6 x 9 x 0.8) |
| Main Cable Connection Screw/Bolt | M5 | M5 | M5 | M6 | M6 | M6 |
| Tightening torque | | | | | | |
| Nm | 3 | 3 | 3 | 3 | 3 | 3 |
| Lb-in | 26.6 | 26.6 | 26.6 | 26.6 | 26.6 | 26.6 |
| Terminal Capacity Control Circuit Cable — Screw Terminals | | | | | | |
| Solid (mm ²) | 1 x (0.75 – 4) 2 x (0.75 – 4) | 1 x (0.75 – 4) 2 x (0.75 – 4) | 1 x (0.75 – 4) 2 x (0.75 – 4) | 1 x (0.75 – 4) 2 x (0.75 – 4) | 1 x (0.75 – 4) 2 x (0.75 – 4) | 1 x (0.75 – 4) 2 x (0.75 – 4) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 |
| Control Circuit Cable Connection Screw/Bolt | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 |
| Tightening torque | | | | | | |
| Nm | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Lb-in | 10.6 | 10.6 | 10.6 | 10.6 | 10.6 | 10.6 |

① IEC 60947 Standard.

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Table B-104. XT Contactors Technical Data and Specifications — Frame C – D (Continued)

| Description | XTCE018C | XTCE025C | XTCE032C | XTCE040D | XTCE050D | XTCE065D |
|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| General (Continued) | | | | | | |
| Tools Main and Control Circuit Cable — Screw Terminals Posidrive screwdriver Standard screwdriver | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 | Size 2 0.8 x 5.5 1 x 6 |
| Terminal Capacity Control Circuit Cable — Spring Cage Terminals Solid (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Flexible (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 |
| Tools Main and Control Circuit Cable — Spring Cage Terminals Stripping Length (mm) | 10 | 10 | 10 | 10 | 10 | 10 |
| Screwdriver blade width (mm) | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 | 3.5 |
| Mounting Position, AC and DC operated | | | | | | |
| Ambient Temperature Open | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] |
| Enclosed | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] |
| Ambient Storage Temperature | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] |
| Environmental | | | | | | |
| Mechanical Shock Resistance (IEC/EN 60068-2-27) Main contact — NO Contact | 10 | 10 | 10 | 10 | 10 | 10 |
| Auxiliary contact — NO Contact | 7 | 7 | 7 | 7 | 7 | 7 |
| Auxiliary contact — NC Contact | 5 | 5 | 5 | 5 | 5 | 5 |
| Overvoltage Category / Pollution Degree | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |

B

Contactors and Starters

Frame F – G

Table B-105. XT Contactors Technical Data and Specifications — Frame F – G

| Description | XTCE080F | XTCE095F | XTCE115G | XTCE150G |
|--|---|--------------------------------------|--------------------------------------|--------------------------------------|
| General | | | | |
| Standards | IEC/EN 60947, VDE 0660, UL, CSA, CCC, RoHS | | | |
| Weights in kg [Lb] | | | | |
| AC operated | 2 [4.41] | 2 [4.41] | 2 [4.41] | 2 [4.41] |
| DC operated | 2.1 [4.63] | 2.1 [4.63] | 2.1 [4.63] | 2.1 [4.63] |
| Mechanical Life | 10,000 | 10,000 | 10,000 | 10,000 |
| Mechanical Operating Frequency (ops/hr) | | | | |
| AC operated | 3600 | 3600 | 3600 | 3600 |
| DC operated | 3600 | 3600 | 3600 | 3600 |
| Electrical Mechanical Operating Frequency (ops/hr) — see Curve, Page B-80 | | | | |
| AC-1; 400V I _e | 800 | 800 | 800 | 800 |
| AC-3; 400V I _e | 800 | 800 | 800 | 800 |
| AC-4; 400V I _e | 300 | 300 | 300 | 300 |
| Climatic Proofing | Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60 068-2-30 | | | |
| Insulation Voltage (U _i) V AC | 1000 | 1000 | 1000 | 1000 |
| Impulse Withstand Voltage (U _{imp}) V AC | 8000 | 8000 | 8000 | 8000 |
| Operational Voltage (U _e) V AC | 1000 | 1000 | 1000 | 1000 |
| Safe Isolation to VDE 0106 Part 101 and Part 101/A1 | | | | |
| Between coil and contacts (V AC) | 690 | 690 | 690 | 690 |
| Between contacts (V AC) | 690 | 690 | 690 | 690 |
| Making Capacity (Amps) | 1120 | 1330 | 1610 | 2100 |
| Breaking Capacity (Amps) | | | | |
| 220/230V | 800 | 950 | 1150 | 1500 |
| 380/400V | 800 | 950 | 1150 | 1500 |
| 500V | 800 | 950 | 1150 | 1500 |
| 660/690V | 650 | 800 | 1100 | 1200 |
| 1000V | — | — | — | — |
| Short-Circuit Protection Rating Maximum Fuse | | | | |
| Type 2 Coordination ② | | | | |
| 400V; gG/gL 500V | 160 | 160 | 250 | 250 |
| 690V; gG/gL 690V | 160 | 160 | ① | ① |
| Type 1 Coordination ② | | | | |
| 400V; gG/gL 500V | 250 | 250 | 250 | 250 |
| 690V; gG/gL 690V | 200 | 200 | ① | ① |
| Degree of Protection | IP00 | | | |
| Protection Against Direct Contact when Actuated from Front (IEC 536) | Finger- and back-of-hand proof | | | |
| Terminal Capacity Main Cable — Screw Terminals Solid (mm ²) | — | — | — | — |
| Flexible with ferrule (mm ²) | 1 x (10 – 95) 2 x (10 – 70) | 1 x (10 – 95) 2 x (10 – 70) | 1 x (10 – 95) 2 x (10 – 70) | 1 x (10 – 95) 2 x (10 – 70) |
| Stranded (mm ²) | 1 x (16 – 120) 2 x (16 – 95) | 1 x (16 – 120) 2 x (16 – 95) | 1 x (16 – 120) 2 x (16 – 95) | 1 x (16 – 120) 2 x (16 – 95) |
| Flat Conductor (Number of Segments x Width x Thickness) (mm) | 2 x (6 x 16 x 0.8) | 2 x (6 x 16 x 0.8) | 2 x (6 x 16 x 0.8) | 2 x (6 x 16 x 0.8) |
| Solid or Stranded (AWG) | 8 – 250 MCM | 8 – 250 MCM | 8 – 250 MCM | 8 – 250 MCM |
| Main Cable Connection Screw/Bolt | M10 | M10 | M10 | M10 |
| Tightening torque | | | | |
| Nm | 14 | 14 | 14 | 14 |
| Lb-in | 123.9 | 123.9 | 123.9 | 123.9 |
| Terminal Capacity Control Circuit Cable — Screw Terminals | | | | |
| Solid (mm ²) | 1 x (0.75 – 4) 1 x (0.75 – 4) | 1 x (0.75 – 4) 1 x (0.75 – 4) | 1 x (0.75 – 4) 1 x (0.75 – 4) | 1 x (0.75 – 4) 1 x (0.75 – 4) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 |
| Control Circuit Cable Connection Screw/Bolt | M3.5 | M3.5 | M3.5 | M3.5 |
| Tightening torque | | | | |
| Nm | 1.2 | 1.2 | 1.2 | 1.2 |
| Lb-in | 10.6 | 10.6 | 10.6 | 10.6 |

① Contact Eaton.

② IEC 60947 Standard.

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Table B-105. XT Contactors Technical Data and Specifications — Frame F – G (Continued)

| Description | XTCE080F | XTCE095F | XTCE115G | XTCE150G |
|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| General (Continued) | | | | |
| Tools Main Circuit Cable — Screw Terminals Hexagon Socket-Head Spanner (mm) Control Circuit Cable — Screw Terminals Posidrive screwdriver Standard screwdriver | 5 Size 2 0.8 x 5.5 1 x 6 | 5 Size 2 0.8 x 5.5 1 x 6 | 5 Size 2 0.8 x 5.5 1 x 6 | 5 Size 2 0.8 x 5.5 1 x 6 |
| Terminal Capacity Control Circuit Cable — Spring Cage Terminals Solid (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Flexible (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 18 – 14 | 18 – 14 | 18 – 14 | 18 – 14 |
| Tools Control Circuit Cable — Spring Cage Terminals Stripping Length (mm) | 10 | 10 | 10 | 10 |
| Screwdriver blade width (mm) | 3.5 | 3.5 | 3.5 | 3.5 |
| Mounting Position, AC and DC operated | | | | |
| Ambient Temperature Open | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] |
| Enclosed | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] | -25 to 40°C [-13 to 104°F] |
| Ambient Storage Temperature | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] |
| Environmental | | | | |
| Mechanical Shock Resistance (IEC/EN 60068-2-27) Half-sinusoidal shock 10 mS Main contact — NO Contact Auxiliary contact — NO Contact Auxiliary contact — NC Contact | 10g 7g 5g | 10g 7g 5g | 10g 7g 5g | 10g 7g 5g |
| Overvoltage Category/Pollution Degree | III/3 | III/3 | III/3 | III/3 |

B

Contactors and Starters

Frame L – M

Table B-106. XT Contactors Technical Data and Specifications — Frame L – M

| Description | XTCE185L | XTCE225L | XTCE250L | XTCE300M | XTCE400M | XTCE500M |
|--|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| General | | | | | | |
| Standards | IEC/EN 60947, VDE 0660, UL, CSA | | | | | |
| Weights in kg [Lb] | 6.5 [14.3] | 6.5 [14.3] | 6.5 [14.3] | 8 [18] | 8 [18] | 8 [18] |
| Mechanical Life | 10,000,000 | 10,000,000 | 10,000,000 | 7000000 | 7000000 | 7000000 |
| Mechanical Operating Frequency (ops/hr) | See Figure B-43 on Page B-81. | | | | | |
| AC operated | 3000 | 3000 | 3000 | 2000 | 2000 | 2000 |
| DC operated | 3000 | 3000 | 3000 | 2000 | 2000 | 2000 |
| Mechanical Operating Frequency (ops/hr) | See Figure B-43 on Page B-81. | | | | | |
| Climatic Proofing | Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60 068-2-30 | | | | | |
| Insulation Voltage (U _i) V AC | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Impulse Withstand Voltage (U _{imp}) V AC | 8000 | 8000 | 8000 | 8000 | 8000 | 8000 |
| Operating Voltage (U _e) V AC | 1000 | 1000 | 1000 | 1000 | 1000 | 1000 |
| Safe Isolation to VDE 0106 Part 101 and Part 101/A1 | | | | | | |
| Between coil and contacts (V AC) | 500 | 500 | 500 | 500 | 500 | 500 |
| Between contacts (V AC) | 500 | 500 | 500 | 500 | 500 | 500 |
| Making Capacity (Amps) | 3000 | 3000 | 3000 | 5500 | 5500 | 5500 |
| Breaking Capacity (Amps) | | | | | | |
| 220/230V | 2500 | 2500 | 2500 | 5000 | 5000 | 5000 |
| 380/400V | 2500 | 2500 | 2500 | 5000 | 5000 | 5000 |
| 500V | 2500 | 2500 | 2500 | 5000 | 5000 | 5000 |
| 660/690V | 2500 | 2500 | 2500 | 5000 | 5000 | 5000 |
| 1000V | 760 | 760 | 760 | 950 | 950 | 950 |
| Short-Circuit Protection Rating Maximum Fuse | | | | | | |
| Type 2 Coordination ② | | | | | | |
| 400V; gG/gL 500V | 315 | 315 | 315 | 500 | 500 | 500 |
| 690V; gG/gL 690V | 315 | 315 | 315 | 500 | 500 | 500 |
| 1000V; gG/gL 1000V | 160 | 160 | 160 | 200 | 200 | 200 |
| Type 1 Coordination ② | | | | | | |
| 400V; gG/gL 500V | 400 | 400 | 400 | 630 | 630 | 630 |
| 690V; gG/gL 690V | 400 | 400 | 400 | 630 | 630 | 630 |
| 1000V; gG/gL 1000V | 200 | 200 | 200 | 250 | 250 | 250 |
| Degree of Protection | IP00 | | | | | |
| Protection Against Direct Contact when Actuated from Front (Iec 536) | Finger- and back-of-hand proof with terminal shroud or terminal block. | | | | | |
| Main Cable Cross-Section | | | | | | |
| Flexible with cable lug (mm ²) | 35 – 95 | 50 – 240 | 50 – 240 | 50 – 240 | 50 – 240 | 50 – 240 |
| Stranded with cable lug (mm ²) | 50 – 120 | 70 – 240 | 70 – 240 | 70 – 240 | 70 – 240 | 70 – 240 |
| Solid or Stranded (AWG) | | 1/0 – 250 MCM | 1/0 – 250 MCM | 1/0 – 250 MCM | 1/0 – 250 MCM | 1/0 – 250 MCM |
| Flat Conductor (mm) | | ① | ① | ① | ① | ① |
| Busbar — Width in mm | 20 | 20 | 25 | 25 | 25 | 30 |
| Main Cable Connection Screw/Bolt | M10 | M10 | M10 | M10 | M10 | M10 |
| Tightening torque | | | | | | |
| Nm | 24 | 24 | 24 | 24 | 24 | 24 |
| Lb-in | 213 | 213 | 213 | 213 | 213 | 213 |
| Control Circuit Cable Cross-Sections | | | | | | |
| Solid (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Flexible with ferrule (mm ²) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) | 1 x (0.75 – 2.5) 2 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 2 x (18 – 12) | 2 x (18 – 12) | 2 x (18 – 12) | 2 x (18 – 12) | 2 x (18 – 12) | 2 x (18 – 12) |
| Control Circuit Cable Connection Screw/Bolt | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 |
| Tightening torque | | | | | | |
| Nm | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Lb-in | 10.6 | 10.6 | 10.6 | 10.6 | 10.6 | 10.6 |
| Tools | | | | | | |
| Main cable wrench | 16 mm | 16 mm | 16 mm | 16 mm | 16 mm | 16 mm |
| Control circuit cable pozidrive screwdriver | Size 2 | Size 2 | Size 2 | Size 2 | Size 2 | Size 2 |

① Screw tightening with flat cable terminal or cable terminal blocks. See terminal capacity for cable terminal blocks.

② IEC 60947 Standard.

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Contactors and Starters

Table B-106. XT Contactors Technical Data and Specifications — Frame L – M (Continued)

| Description | XTCE185L | XTCE225L | XTCE250L | XTCE300M | XTCE400M | XTCE500M |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| General (Continued) | | | | | | |
| Mounting Position, AC and DC Operated | | | | | | |
| Ambient Temperature | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] |
| Ambient Storage Temperature | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] |
| Environmental | | | | | | |
| Mechanical Shock Resistance (IEC/EN 60068-2-27) Half-sinusoidal shock 10 mS Main contact — NO Contact Auxiliary contact — NO Contact Auxiliary contact — NC Contact | 10g 10g 8g | 10g 10g 8g | 10g 10g 8g | 10g 10g 8g | 10g 10g 8g | 10g 10g 8g |
| Overvoltage Category/ Pollution Degree | III/3 | III/3 | III/3 | III/3 | III/3 | III/3 |
| Switching Capacity, kvar ^① Individual Compensation 230V 400/420/440V 525V 690V | 87 150 190 150 | — — — — | — — — — | 115 200 265 200 | — — — — | — — — — |
| Group Compensation, with Choke 230V 400/420/440V 525V 690V | 80 150 200 260 | 100 175 230 300 | 110 190 260 340 | 130 225 290 390 | 160 280 370 480 | 160 280 370 480 |
| Group Compensation, without Choke 230V 400/420/440V 525V 690V | 66 115 145 115 | — — — — | — — — — | 85 150 195 150 | — — — — | — — — — |

B

① When using contactors for group compensation, a minimum inductance of approx. 6 uH per capacitor must be available to limit the high inrush current peaks. This corresponds to an air-cored coil with 5 windings and a coil diameter of approximately 140 mm. The conductor cross-section must be selected according to the rated current per phase.

Contactors and Starters

Frame N – R

Table B-107. XT Contactors Technical Data and Specifications — Frame N – R

| Description | XTCE580N | XTCE650N | XTCE750N, XTCE820N, | XTCEC10N | XTCEC14P, XTCEC20R |
|--|---|------------------|------------------------|------------------|-----------------------|
| General | | | | | |
| Standards | IEC/EN 60947, VDE 0660, UL, CSA | | | | |
| Weights in kg [Lb] | 15 [33] | 15 [33] | 15 [33] | 15 [33] | 15, 32 [33, 70] |
| Mechanical Life | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 | 5,000,000 |
| Mechanical Operating Frequency (ops/hr) | | | | | |
| AC operated | 1000 | 1000 | 1000 | 1000 | 1000 |
| DC operated | 1000 | 1000 | 1000 | 1000 | 1000 |
| Maximum Operating frequency (ops/hr) | See Figure B-43 on Page B-81. | | | | |
| Climatic Proofing | Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60 068-2-30 | | | | |
| Insulation Voltage (U _i) V AC | 1000 | 1000 | 1000 | 1000 | 1000 |
| Impulse Withstand Voltage (U _{imp}) V AC | 8000 | 8000 | 8000 | 8000 | 8000 |
| Operating Voltage (U _e) V AC | 1000 | 1000 | 1000 | 1000 | 1000 |
| Safe Isolation to VDE 0106 Part 101 and Part 101/A1 | | | | | |
| Between coil and contacts (V AC) | 500 | 500 | 500 | 500 | 500 |
| Between contacts (V AC) | 500 | 500 | 500 | 500 | 500 |
| Making Capacity (Amps) | 7800 | 7800 | 9840 | 9840 | 9840 |
| Breaking Capacity (Amps) | | | | | |
| 220/230V | 6500 | 6500 | 8200 | 8200 | 8200 |
| 380/400V | 6500 | 6500 | 8200 | 8200 | 8200 |
| 500V | 6500 | 6500 | 8200 | 8200 | 8200 |
| 660/690V | 6500 | 6500 | 8200 | 8200 | 8200 |
| 1000V | 4350 | 4350 | 5800 | 5800 | 5800 |
| Short-Circuit Protection Rating Maximum Fuse | | | | | |
| Type 2 Coordination ② | | | | | |
| 400V; gG/gL 500V | 630 | 630 | 630 | 630 | — |
| 690V; gG/gL 690V | 630 | 630 | 630 | 630 | — |
| 1000V; gG/gL 1000V | 500 | 500 | 630 | 630 | — |
| Type 1 Coordination ② | | | | | |
| 400V; gG/gL 500V | 1000 | 1000 | 1200 | 1200 | — |
| 690V; gG/gL 690V | 1000 | 1000 | 1200 | 1200 | — |
| 1000V; gG/gL 1000V | 630 | 630 | 800 | 800 | — |
| Degree of Protection | IP00 | | | | |
| Protection Against Direct Contact when Actuated from Front (iec 536) | Finger- and back-of-hand proof with terminal shroud or terminal block. | | | | |
| Main Cable Cross-Section | | | | | |
| Flexible with cable lug (mm ²) | 50-240 | 50-240 | 50-240 | 50-240 | 50-240 |
| Stranded with cable lug (mm ²) | 70-240 | 70-240 | 70-240 | 70-240 | 70-240 |
| Solid or Stranded (AWG) | 2/0 – 500 MCM | 2/0 – 500 MCM | 2/0 – 500 MCM | 2/0 – 500 MCM | 2/0 – 500 MCM |
| Flat Conductor (mm) | ① | ① | ① | ① | ① |
| Busbar — Width in mm | 50 | 50 | 50 | 50 | 50 |
| Main Cable Connection Screw/Bolt | M10 | M10 | M12 | M12 | M12 |
| Tightening torque | | | | | |
| Nm | 24 | 24 | 35 | 35 | 35 |
| Lb-in | 213 | 213 | 311 | 311 | 311 |
| Control Circuit Cable Cross-Sections | | | | | |
| Solid (mm ²) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) |
| Flexible with ferrule (mm ²) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) | 1 x (0.75 – 2.5) |
| Flexible with ferrule (mm ²) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) | 2 x (0.75 – 2.5) |
| Solid or Stranded (AWG) | 2 x (18 – 12) | 2 x (18 – 12) | 2 x (18 – 12) | 2 x (18 – 12) | 2 x (18 – 12) |
| Control Circuit Cable Connection Screw/Bolt | M3.5 | M3.5 | M3.5 | M3.5 | M3.5 |
| Tightening torque | | | | | |
| Nm | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| Lb-in | 10.6 | 10.6 | 10.6 | 10.6 | 10.6 |

① Screw tightening with flat cable terminal or cable terminal blocks. See terminal capacity for cable terminal blocks.

② IEC 60947 Standard.

Table B-107. XT Contactors Technical Data and Specifications — Frame N – R (Continued)

| Description | XTCE580N | XTCE650N | XTCE750N, XTCE820N, | XTCEC10N | XTCEC14N, XTCEC20N |
|---|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
| General (Continued) | | | | | |
| Tools Main cable wrench Control circuit cable pozidrive screwdriver | 16 mm Size 2 | 16 mm Size 2 | 18 mm Size 2 | 18 mm Size 2 | 18 mm Size 2 |
| Mounting Position, AC and DC Operated | | | | | |
| Ambient Temperature | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] | -25 to 60°C [-13 to 140°F] |
| Ambient Storage Temperature | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] | -40 to 80°C [-40 to 176°F] |

Environmental

| | | | | | |
|---|--------------------------|------------------|------------------|------------------|------------------|
| Mechanical Shock Resistance (IEC/EN 60068-2-27) Half-sinusoidal shock 10 mS (g) Main contact — NO Contact Auxiliary contact — NO Contact Auxiliary contact — NC Contact | 10 10 8 | 10 10 8 | 10 10 8 | 10 10 8 | 10 10 8 |
| Overvoltage Category/Pollution Degree | III/3 | III/3 | III/3 | III/3 | III/3 |
| Switching Capacity, kvar ^① Individual Compensation 230V 400/420/440V 525V 690V | 175 300 400 300 | — — — — | — — — — | — — — — | — — — — |

① When using contactors for group compensation, a minimum inductance of approx. 6 uH per capacitor must be available to limit the high inrush current peaks. This corresponds to an air-cored coil with 5 windings and a coil diameter of approximately 140 mm. The conductor cross-section must be selected according to the rated current per phase.

Instructional Leaflets

Table B-108. Instructional Leaflets

| Publication Number | Description |
|--------------------|--|
| Pub51210 | 7 – 15A, B Frame XTCE, XTCEC and XTCE Contactors and Accessories (Inside of Packaging) |
| Pub51211 | 18 – 32A, C Frame XTCE and XTCEC Contactors and Accessories (Inside of Packaging) |
| Pub51221 | XTOB, D Frame Overload Relays (Inside of Packaging) |
| Pub51222 | XTOB, B – C Frame Overload Relays (Inside of Packaging) |
| Pub51237 | 7 – 12A, B Frame XTCE Contactors and Auxiliary Contacts |
| Pub51232 | 18 – 32A, C Frame XTCE Contactors and Auxiliary Contacts |
| Pub51216 | 40 – 65A, D Frame XTCE Contactors and Auxiliary Contacts |
| Pub51203 | 185 – 500A, L – M Frame XTCE Contactors and Auxiliary Contacts |
| Pub51215 | S-Series 185 – 500A, L – M Frame XTCE Contactors and Auxiliary Contacts |
| Pub51204 | 580 – 1000A, N Frame XTCE Contactors and Auxiliary Contacts |
| Pub51209 | 1400 – 2000A, P – R Frame XTCE Contactors and Auxiliary Contacts |
| Pub51213 | 7 – 150A, B – G Frame XTAE Non-reversing and XTAR Reversing Starters |
| Pub51217 | XTCEXF and XTCEXSA Front and Side Mount Auxiliary Contacts from 40 – 150A, D – G Frame XTCE Contactors |
| Pub51212 | XTCEXML Mechanical Interlock for 7 – 150A, B – G Frame XTCE Contactors |
| Pub51214 | XTCEXRL Reversing Link Kits for 18 – 32A, C Frame XTCE Contactors |
| Pub51218 | XTCEXTL Lug Kits for 500 – 820A, M – N Frame XTCE Contactors |
| Pub51219 | XTCEXRLB and XTCEXSDLB Reversing and Star-Delta (Wye-Delta) Link Kits for 7 – 12A, B Frame XTCE Contactors |
| Pub51205 | Accessories for 185 – 500A, L – M Frame XTCE Contactors |
| Pub51207 | Replacement DC Coils |
| Pub51213 | Renewal Parts — Coils for 18 – 32A, C Frame XTCE Contactors |
| Pub51186 | Renewal Parts — Coils for 40 – 65A, D Frame XTCE Contactors |

B

Contactors and Starters

Coil Data

Frame B – D

Table B-109. Coil Data — Frame B – D

| | XTCE007B | XTCE009B | XTCE012B XTCF020B | XTCE015B | XTCE018C | XTCE025C | XTCE032C | XTCE040D | XTCE050D | XTCE065D |
|--|----------|----------|----------------------|----------|----------|----------|----------|----------|----------|----------|
|--|----------|----------|----------------------|----------|----------|----------|----------|----------|----------|----------|

Voltage Tolerance

| | | | | | | | | | | |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| Pick-Up (x U _C) | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 |
| AC operated | 0.8 – 1.1 ① | 0.8 – 1.1 ① | 0.8 – 1.1 ① | 0.8 – 1.1 ① | 0.7 – 1.2 ② | 0.7 – 1.2 ② | 0.7 – 1.2 ② | 0.7 – 1.2 ② | 0.7 – 1.2 ② | 0.7 – 1.2 ② |
| DC operated | | | | | | | | | | |
| Drop-Out (x U _C) | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 | 0.3 – 0.6 |
| AC operated | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 |
| DC operated | | | | | | | | | | |

Power Consumption of the coil at cold state and 1.0 x U_C

| | | | | | | | | | | |
|---------------------------|-----|-----|-----|-----|------------|------------|------------|------------|------------|------------|
| AC operated | | | | | | | | | | |
| Single-voltage coil 50 Hz | | | | | | | | | | |
| Pick-Up VA | 24 | 24 | 24 | 24 | 52 | 52 | 52 | 149 | 149 | 149 |
| Pick-Up W | 19 | 19 | 19 | 19 | 40 | 40 | 40 | 80 | 80 | 80 |
| Sealing VA | 3.4 | 3.4 | 3.4 | 3.4 | 7.1 | 7.1 | 7.1 | 16 | 16 | 16 |
| Sealing W | 1.2 | 1.2 | 1.2 | 1.2 | 2.1 | 2.1 | 2.1 | 4.3 | 4.3 | 4.3 |
| Single-voltage coil 60 Hz | | | | | | | | | | |
| Pick-Up VA | 30 | 30 | 30 | 30 | 67 | 67 | 67 | 178 | 178 | 178 |
| Pick-Up W | 23 | 23 | 23 | 23 | 50 | 50 | 50 | 117 | 117 | 117 |
| Sealing VA | 4.4 | 4.4 | 4.4 | 4.4 | 8.7 | 8.7 | 8.7 | 19 | 19 | 19 |
| Sealing W | 1.4 | 1.4 | 1.4 | 1.4 | 2.6 | 2.6 | 2.6 | 5.3 | 5.3 | 5.3 |
| 50/60 Hz | | | | | | | | | | |
| Pick-Up VA | 27 | 27 | 27 | 27 | 62 | 62 | 62 | 168 | 168 | 168 |
| | 25 | 25 | 25 | 25 | 58 | 58 | 58 | 154 | 154 | 154 |
| Pick-Up W | 22 | 22 | 22 | 22 | 48 | 48 | 48 | 120 | 120 | 120 |
| | 21 | 21 | 21 | 21 | 43 | 43 | 43 | 43 | 43 | 43 |
| Sealing VA | 4.2 | 4.2 | 4.2 | 4.2 | 9.1 | 9.1 | 9.1 | 22 | 22 | 22 |
| | 3.3 | 3.3 | 3.3 | 3.3 | 6.5 | 6.5 | 6.5 | 14 | 14 | 14 |
| Sealing W | 1.4 | 1.4 | 1.4 | 1.4 | 2.5 | 2.5 | 2.5 | 5.3 | 5.3 | 5.3 |
| | 1.2 | 1.2 | 1.2 | 1.2 | 2 | 2 | 2 | 4.3 | 4.3 | 4.3 |
| DC operated | | | | | | | | | | |
| Pick-Up W | 3 | 3 | 4.5 | 4.5 | 12 at 24V | 12 at 24V | 12 at 24V | 24 at 24V | 24 at 24V | 24 at 24V |
| Sealing W | 3 | 3 | 4.5 | 4.5 | 0.5 at 24V | 0.5 at 24V | 0.5 at 24V | 0.5 at 24V | 0.5 at 24V | 0.5 at 24V |
| Duty Factor (%DF) | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Switching Time at 100% U_C (approximate values)

| | | | | | | | | | | |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Main Contact | | | | | | | | | | |
| AC operated | | | | | | | | | | |
| Closing delay (mS) | <21 | <21 | <21 | <21 | <22 | <22 | <22 | <18 | <18 | <18 |
| Opening delay (mS) | <18 | <18 | <18 | <18 | <14 | <14 | <14 | <13 | <13 | <13 |
| DC operated | | | | | | | | | | |
| Closing delay (mS) | <31 | <31 | <31 | <31 | <47 | <47 | <47 | <54 | <54 | <54 |
| Opening delay (mS) | <12 | <12 | <12 | <12 | <30 | <30 | <30 | <24 | <24 | <24 |
| Arcing time (mS) | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

Electromagnetic Compatibility (EMC)

| | |
|----------------------|---------------|
| Emitted interference | To EN-60947-1 |
| Noise Immunity | To EN-60947-1 |

① 0.7 – 1.3 without additional auxiliary contact modules and ambient temperature +40°C [104°F].

② Coil Suffix TD: U_{min} 24V DC/U_{max} 27V DC.Coil Suffix WD: U_{min} 48V DC/U_{max} 60V DC.Coil Suffix AD: U_{min} 110V DC/U_{max} 130V DC.Coil Suffix BD: U_{min} 200V DC/U_{max} 240V DC.

Example:

U_C = 0.7 x U_{min} — 1.2 x U_{max}U_C = 0.7 x 24V — 1.2 x 27V DC

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Frame F – G

Table B-110. Coil Data — Frame F – G

| | XTCE80F | XTCE95F | XTCE115G | XTCE150G |
|---------------------------|------------------------|------------------------|------------------------|------------------------|
| Voltage Tolerance | | | | |
| Pick-Up ($\times U_c$) | | | | |
| AC operated | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 | 0.8 – 1.1 |
| DC operated | 0.7 – 1.2 ^① | 0.7 – 1.2 ^① | 0.7 – 1.2 ^① | 0.7 – 1.2 ^① |
| Drop-Out ($\times U_c$) | | | | |
| AC operated | 0.3 – 0.6 | 0.3 – 0.6 | 0.25 – 0.6 | 0.25 – 0.6 |
| DC operated | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 | 0.15 – 0.6 |

Power Consumption of the coil at cold state and 1.0 $\times U_c$

| | | | | |
|---------------------------|------------|------------|------------|------------|
| AC operated | | | | |
| Single-voltage coil 50 Hz | | | | |
| Pick-Up VA | 310 | 310 | 180 | 180 |
| Pick-Up W | 165 | 165 | 130 | 130 |
| Sealing VA | 26 | 26 | 3.1 | 3.1 |
| Sealing W | 5.8 | 5.8 | 2.1 | 2.1 |
| Single-voltage coil 60 Hz | | | | |
| Pick-Up VA | 345 | 345 | 170 | 170 |
| Pick-Up W | 190 | 190 | 130 | 130 |
| Sealing VA | 30 | 30 | 3.1 | 3.1 |
| Sealing W | 7.1 | 7.1 | 2.1 | 2.1 |
| 50/60 Hz | | | | |
| Pick-Up VA | 372 | 328 | 170 | 170 |
| Pick-Up W | 190 | 190 | 130 | 130 |
| Sealing VA | 37.1 | 22.6 | 3.1 | 3.1 |
| Sealing W | 7.5 | 6.1 | 2.1 | 2.1 |
| DC operated | | | | |
| Pick-Up W | 90 at 24V | 90 at 24V | 149 at 24V | 149 at 24V |
| Sealing W | 1.3 at 24V | 1.3 at 24V | 2.1 at 24V | 2.1 at 24V |
| Duty Factor (%DF) | 100 | 100 | 100 | 100 |

Switching Time at 100% U_c (approximate values)

| | | | | |
|--|----------|----------|----------|----------|
| Main Contact | | | | |
| AC operated | | | | |
| Closing delay (mS) | <20 | <20 | <33 | <33 |
| Opening delay (mS) | <14 | <14 | <41 | <41 |
| DC operated | | | | |
| Closing delay (mS) | <45 | <45 | <35 | <35 |
| Opening delay (mS) | <34 | <34 | <30 | <30 |
| Arcing Time (mS) | 15 | 15 | 15 | 15 |
| Permissible Residual Current with Actuation of A1 – A2 By the Electronics (with 0 signal) (mA) | ≤ 1 | ≤ 1 | ≤ 1 | ≤ 1 |

Electromagnetic Compatibility (EMC)

| | |
|----------------------|--------------|
| Emitted interference | To EN60947-1 |
| Noise Immunity | To EN60947-1 |

^① At 24V: 0.7 – 1.3 without additional auxiliary contact modules and ambient temperature +40°C [104°F].

Contactors and Starters

Frame L – R

Table B-111. Coil Data — Frame L – R

| Description | XTCE185L | XTCE225L, XTCE250L | XTCE300M, XTCE400M | XTCE500M |
|---|---|--------------------|--|------------|
| Voltage Tolerance | | | | |
| Pick-Up ($\times U_c$) XTCE185L – XTCEC20R XTCS185L – XTCS500M | | | 0.7 $\times U_{cmin}$ — 1.15 $\times U_{cmax}$ 0.85 $\times U_{cmin}$ — 1.1 $\times U_{cmax}$ | |
| Drop-Out ($\times U_c$) XTCE185L – XTCEC20R XTCS185L – XTCS500M | | | 0.2 $\times U_{cmin}$ — 0.6 $\times U_{cmax}$ 0.2 $\times U_{cmin}$ — 0.4 $\times U_{cmax}$ | |
| Power Consumption of the coil at cold state and 1.0 $\times U_c$ | | | | |
| XTCE185L – XTCEC20R | | | | |
| Pick-Up VA | 250 ① | 250 ① | 450 ① | 450 ① |
| Pick-Up W | 200 | 200 | 350 | 350 |
| Sealing VA | 4.3 | 4.3 | 4.3 | 4.3 |
| Sealing W | 3.3 | 3.3 | 3.3 | 3.3 |
| XTCS185L – XTCS500M | | | | |
| Pick-Up VA | 360 | 360 | 715 | 715 |
| Pick-Up W | 325 | 325 | 645 | 645 |
| Sealing VA | 4.3 | 4.3 | 4.3 | 4.3 |
| Sealing W | 3.3 | 3.3 | 3.3 | 3.3 |
| Duty Factor (%DF) | 100 | 100 | 100 | 100 |
| Switching Time at 100% Main Contact U_c (approximate values) | | | | |
| XTCE185L – XTCEC20R | | | | |
| Closing delay (mS) | <100 | <100 | <80 | <80 |
| Opening delay (mS) | <80 | <80 | <80 | <80 |
| XTCS185L – XTCS500M | | | | |
| Closing delay (mS) | <50 | <50 | <50 | <50 |
| Opening delay (mS) | <40 | <40 | <40 | <40 |
| Reaction in Threshold and Sealing State Transition Range (XTCE185L – XTCEC20R) | | | | |
| Voltage interruptions (0 – 0.2 $\times U_{cmin}$) \leq 10ms (0 – 0.2 $\times U_{cmin}$) $>$ 10ms | | | Time is bridged successfully Drop-out of the contactor | |
| Voltage Dips (0.2 – 0.6 $\times U_{cmin}$) \leq 12ms (0.2 – 0.6 $\times U_{cmin}$) $>$ 12ms (0.6 – 0.7 $\times U_{cmin}$) | | | Time is bridged successfully Drop-out of the contactor Contactor remains switched on | |
| Excess Voltage (1.15 – 1.3 $\times U_{cmax}$) ($>$ 1.3 $\times U_{cmax}$) \leq 3s ($>$ 1.3 $\times U_{cmax}$) $>$ 3s | | | Contactor remains switched on Contactor remains switched on Drop-out of the contactor | |
| Pick – Up phase (0 – 0.7 $\times U_{cmin}$) (0.7 $\times U_{cmin}$ – 1.15 $\times U_{cmax}$) ($>$ 1.15 $\times U_{cmax}$) | | | Contactor does not switch on Contactor switches on with certainty Contactor switches on with certainty | |
| Permissible contact resistance (of the external command device with actuation of A11), Ω | \leq 500 | \leq 500 | \leq 500 | \leq 500 |
| Permissible residual current (with actuation of A11 by the electronics with 0 signal) | \leq 1 | \leq 1 | \leq 1 | \leq 1 |
| SPS Signal Level (A3 – A4) to IEC/EN 61131-2 (Type 2) | | | | |
| High | 15V | 15V | 15V | 15V |
| Low | 5V | 5V | 5V | 5V |
| Electromagnetic compatibility (EMC) | This product is designed for operation in industrial environments. Usage in domestic areas can cause radio frequency interference (RFI). Noise suppression measures must be provided for the additional interference. | | | |

① Control transformer with $U_k \leq 6\%$.

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Table B-111. Coil Data — Frame L – R (Continued)

| Description | XTCE580N | XTCE750N, XTCE820N | XTCEC10N | XTCEC14P | XTCEC20R |
|---|---|--------------------|----------|----------|----------|
| Voltage Tolerance | | | | | |
| Pick-Up ($x U_c$) XTCE185L – XTCEC20R XTCS185L – XTCS500M | 0.7 x U_{cmin} — 1.15 x U_{cmax} 0.85 x U_{cmin} — 1.1 x U_{cmax} | | | | |
| Drop-Out ($x U_c$) XTCE185L – XTCEC20R XTCS185L – XTCS500M | 0.2 x U_{cmin} — 0.6 x U_{cmax} 0.2 x U_{cmin} — 0.4 x U_{cmax} | | | | |
| Power Consumption of the coil at cold state and 1.0 x U_c | | | | | |
| XTCE185L – XTCEC20R | | | | | |
| Pick-Up VA | 800 ① | 800 ① | 800 ① | 800 ① | 1600 ① |
| Pick-Up W | 700 | 700 | 700 | 700 | 1400 |
| Sealing VA | 7.5 | 7.5 | 7.5 | 7.5 | 15 |
| Sealing W | 6.5 | 6.5 | 6.5 | 6.5 | 13 |
| XTCS185L – XTCS500M | | | | | |
| Pick-Up VA | — | — | — | — | — |
| Pick-Up W | — | — | — | — | — |
| Sealing VA | — | — | — | — | — |
| Sealing W | — | — | — | — | — |
| Duty Factor (%DF) | 100 | 100 | 100 | 100 | 100 |
| Switching Time at 100% Main Contact U_c (approximate values) | | | | | |
| XTCE185L – XTCEC20R | | | | | |
| Closing delay (mS) | <70 | <70 | <70 | <70 | <70 |
| Opening delay (mS) | <70 | <70 | <70 | <40 | <40 |
| XTCS185L – XTCS500M | | | | | |
| Closing delay (mS) | — | — | — | — | — |
| Opening delay (mS) | — | — | — | — | — |
| Reaction in Threshold and Sealing State Transition Range (XTCE185L – XTCEC20R) | | | | | |
| Voltage interruptions (0 – 0.2 x U_{cmin}) ≤ 10ms (0 – 0.2 x U_{cmin}) > 10ms | Time is bridged successfully Drop-out of the contactor | | | | |
| Voltage Dips (0.2 – 0.6 x U_{cmin}) ≤ 12ms (0.2 – 0.6 x U_{cmin}) > 12ms (0.6 – 0.7 x U_{cmin}) | Time is bridged successfully Drop-out of the contactor Contactor remains switched on | | | | |
| Excess Voltage (1.15 – 1.3 x U_{cmax}) (>1.3 x U_{cmax}) ≤ 3s (>1.3 x U_{cmax}) > 3s | Contactor remains switched on Contactor remains switched on Drop-out of the contactor | | | | |
| Pick – Up phase (0 – 0.7 x U_{cmin}) (0.7 x U_{cmin} – 1.15 x U_{cmax}) (>1.15 x U_{cmax}) | Contactor does not switch on Contactor switches on with certainty Contactor switches on with certainty | | | | |
| Permissible contact resistance (of the external command device with actuation of A11), Ω | ≤ 500 | ≤ 500 | ≤ 500 | ≤ 500 | ≤ 500 |
| Permissible residual current (with actuation of A11 by the electronics with 0 signal) | ≤ 1 | ≤ 1 | ≤ 1 | ≤ 1 | ≤ 1 |
| SPS Signal Level (A3 – A4) to IEC/EN 61131-2 (Type 2) | | | | | |
| High | 15V | 15V | 15V | 15V | 15V |
| Low | 5V | 5V | 5V | 5V | 5V |
| Electromagnetic compatibility (EMC) | This product is designed for operation in industrial environments. Usage in domestic areas can cause radio frequency interference (RFI). Noise suppression measures must be provided for the additional interference. | | | | |

① Control transformer with $U_k \leq 7\%$.

B

Contactors and Starters

Contactor Contact Travel Diagrams

The diagrams indicate the closing and travel of the contacts of the contactors and auxiliary contacts at no-load. Tolerances are not taken into consideration.

B

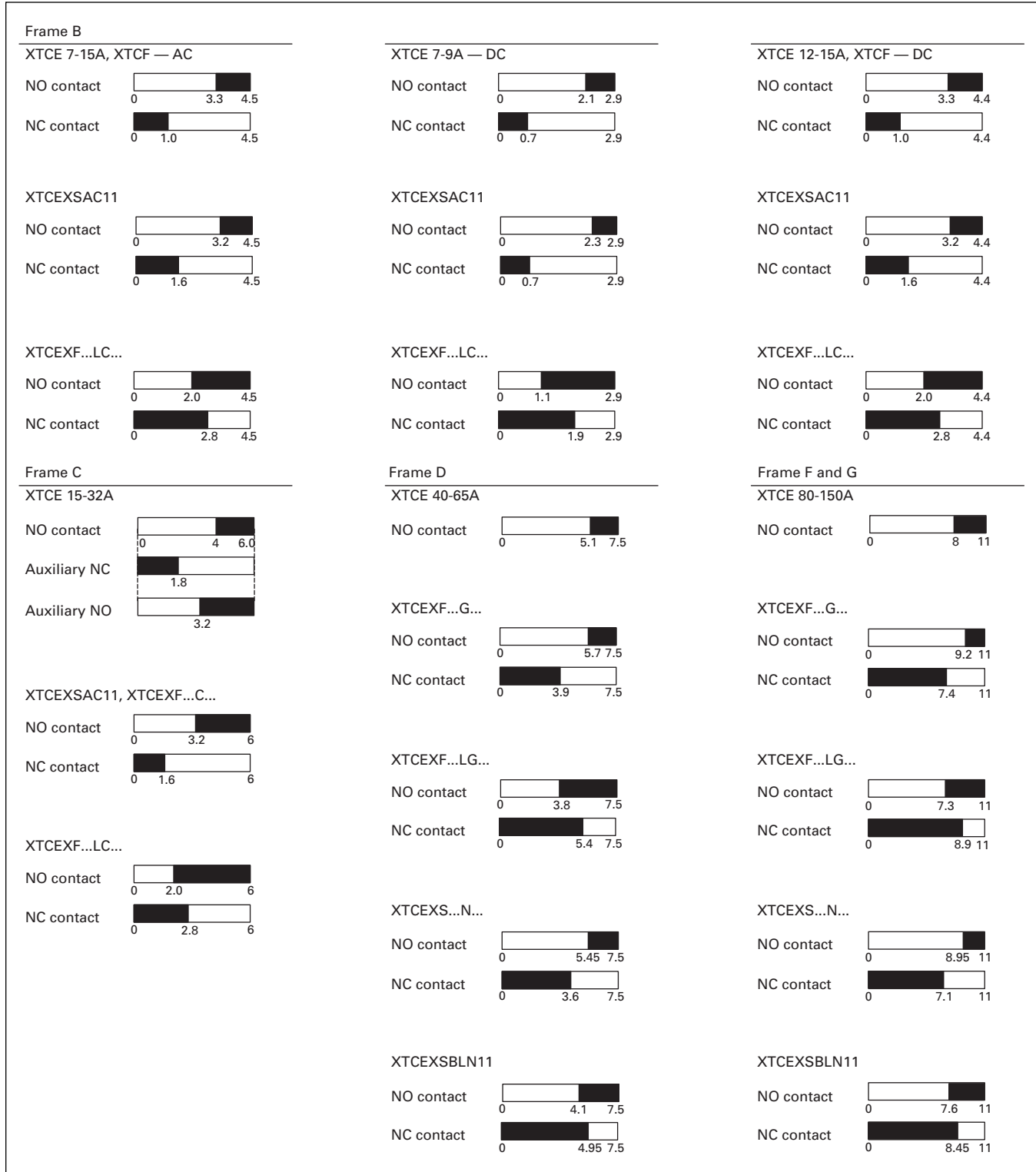


Figure B-38. Contactor Contact Travel Diagrams

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Auxiliary Contacts

Table B-112. Auxiliary Contacts Technical Data and Specifications

| Description | XTCE007B...- XTCE032C | XTCEXFAC... XTCEXFATC... | XTCEXFCC... XTCEXSCC... | XTCEXFAG... | XTCEXSBLN... XTCEXSBN... XTCEXSBN... XTCEXSBN... XTCEXSBN... XTCEXSBN... |
|---|---|-----------------------------|----------------------------|------------------------------|---|
| Interlocked opposing contacts with an auxiliary contact module (to IEC 60947-5 -1 Annex L) | — | Yes | Yes | Yes | Yes |
| Break contact (not late-break contact) suitable as a mirror contact (to IEC/EN 60947-4 -1 Annex F) | XTCE007B... - XTCE032C | XTCE007B... - XTCE032C | XTCE007B... - XTCE032C | XTCE040D... - XTCE065D... | XTCE040D... - XTCE065D... XTCE185L... - XTCEC10N... |
| Rated impulse withstand voltage, (U _{imp}) V AC | 6000 | 6000 | 6000 | 6000 | 6000 |
| Overvoltage category / pollution degree | III/3 | III/3 | III/3 | III/3 | III/3 |
| Rated insulation voltage, (U _i) V AC | 690 | 690 | 690 | 690 | 690 |
| Rated operational voltage, (U _e) V AC | 500 | 500 | 500 | 500 | 500 |
| Safe isolation to VDE 0106 Part 101 and Part 101(A) in V AC | | | | | |
| Between coil and auxiliary contacts | 400 | 400 | 400 | 440 | 440 |
| Between the auxiliary contacts | 400 | 400 | 400 | 440 | 440 |
| Rated Operational Current, I _e | | | | | |
| AC-15 | | | | | |
| 230V | 6A | 6A | 6A | 6A | 6A |
| 380/415V | 4A | 3A | 4A | 4A | 4A |
| 500V | 1.5A | — | 1.5A | 1.5A | 1.5A |
| DC-3 L/R ≤5 mS ① | | | | | |
| 24V | 10A | 10A | 10A | 10A | 10A |
| 60V | 6A | 6A | 6A | 6A | 6A |
| 110V | 3A | 3A | 3A | 3A | 3A |
| 220V | 1A | 1A | 1A | 1A | 1A |
| Conventional thermal current, I _{th} | 16A | 16A | 16A ③ | 10A | 10A |
| Control circuit reliability (at U _e = 24 V DC, U _{min} = 17 V, I _{min} = 5.4 mA) | <10 ⁻⁸ , < one failure at 100 million operations | | | | |
| Component Lifespan, Operations x 10 ⁶ at U _e = 230V, AC-15, 3A | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| Short-circuit rating without welding ② Maximum fuse, gG/gL | 10A | 10A | 10A | 16A | 16A |

① Making and breaking conditions to DC-13, time L/R contact as stated.

② See fuses overlay for time/current characteristic (on request).

③ Conventional thermal current (I_{th}) of XTCEXSCC_i is 10A.

Table B-113. Parallel Link Technical Data and Specifications

| Description | XTCEXPLKB | XTCEXPLKC | XTCEXPLKD | XTCEXPLKG | XTCEXPLK185 |
|--|----------------------------------|---------------|----------------|----------------------------------|--|
| Terminal Capacity Solid (mm ²) | 1 – 16 | 16 | 16 | — | — |
| Flexible with ferrule (mm ²) | 1 x (0.5 – 25) 2 x (0.5 – 16) | 1 x (16 – 35) | 1 x (16 – 120) | — | — |
| Stranded (mm ²) | 1 x (0.5 – 25) 2 x (0.5 – 16) | 1 x (16 – 50) | 1 x (16 – 120) | 1 x (35 – 300) 2 x (35 – 120) | — |
| Flat conductor — number of segments x width x thickness (mm) | 6 x 9 x 0.8 | — | — | 2 x (11 x 21 x 1) | 1 x (6 x 16 x 0.8) 2 x (20 x 32 x 0.5) 2 x (11 x 21 x 1) |
| Tightening Torque (Nm) | 4 | 4 | 14 | — | — |
| Tools Pozidrive screwdriver Hexagon socket head spanner — SW (mm) | Size 2 — | Size 2 — | — 5 | — 6 | — — |
| Conventional Thermal Current 3-Pole (I _{th}) A 4-Pole (I _{th}) A | 50 60 | 100 — | 180 — | 400 — | — — |

Table B-114. Cable Terminal Block, Flat Cable Terminal Technical Data and Specifications

| Description | XTCEXTLA225 | XTCEXTLA400 | XTCEXPLK185 | XTCEXTFB650 | XTCEXTFB820 |
|---|--|---|--|--|--|
| Terminal Capacity Stranded (mm ²) | 1 x (16 – 185) 2 x (16 – 150) | 1 x (120 – 300) 2 x (70 – 240) | — | — | — |
| Stranded (AWG) | 1 x (6 – 350 MCM) 2 x (6 – 300 MCM) | 1 x (1/0 – 600 MCM) 2 x (1/0 – 500 MCM) | — | — | — |
| Flat conductor — number of segments x width x thickness (mm) | 1 x (3 x 9 x 0.8) 2 x (10 x 16 x 0.8) | 1 x (10 x 16 x 0.8) 2 x (20 x 24 x 0.5) 2 x (11 x 21 x 1) | 1 x (6 x 16 x 0.8) 2 x (20 x 32 x 0.5) 2 x (11 x 21 x 1) | 1 x (6 x 16 x 0.8) 2 x (20 x 32 x 0.5) 2 x (11 x 21 x 1) | 1 x (6 x 16 x 0.8) 2 x (10 x 40 x 1) 2 x (20 x 40 x 0.5) |

Contactors and Starters

AC Ratings

Table B-115. AC Ratings

| Description | XTCE007B | XTCE009B | XTCE012B XTCF020B | XTCE015B | XTCE018C | XTCE025C | XTCE032C |
|-------------|----------|----------|----------------------|----------|----------|----------|----------|
|-------------|----------|----------|----------------------|----------|----------|----------|----------|

AC-1 Operation

| | | | | | | | |
|---|-----|-----|-----|-----|-----|-----|-----|
| Conventional Free Air Thermal Current, 3-Pole, 50 – 60 Hz Open | | | | | | | |
| at 40°C (I_{th}) | 22A | 22A | 22A | 22A | 40A | 45A | 45A |
| at 50°C (I_{th}) | 21A | 21A | 21A | 21A | 38A | 43A | 43A |
| at 55°C (I_{th}) | 21A | 21A | 21A | 21A | 37A | 42A | 42A |
| at 60°C (I_{th}) | 20A | 20A | 20A | 20A | 35A | 40A | 40A |
| Enclosed | 18A | 18A | 18A | 18A | 32A | 36A | 36A |
| Conventional Free Air Thermal Current, 1-Pole (I_{th}) Open | 50A | 50A | 50A | 50A | 85A | 85A | 85A |
| Enclosed | 45A | 45A | 45A | 45A | 80A | 80A | 80A |

AC-3 Operation

| | | | | | | | |
|--|-----|-----|-----|------|------|------|----|
| Rated Operational Current, 50/60 Hz ^① (I_e) in amperes | | | | | | | |
| 220/230V | 7 | 9 | 12 | 15.5 | 18 | 25 | 32 |
| 240V | 7 | 9 | 12 | 15.5 | 18 | 25 | 32 |
| 380/400V | 7 | 9 | 12 | 15.5 | 18 | 25 | 32 |
| 415V | 7 | 9 | 12 | 15.5 | 18 | 25 | 32 |
| 440V | 7 | 9 | 12 | 15.5 | 18 | 25 | 32 |
| 500V | 5 | 7 | 10 | 12.5 | 18 | 25 | 32 |
| 660/690V | 4 | 5 | 7 | 9 | 12 | 15 | 18 |
| 1000V | — | — | — | — | — | — | — |
| Rated power (P) in kilowatts | | | | | | | |
| 220/230V | 2.2 | 2.5 | 3.5 | 4 | 5 | 7.5 | 10 |
| 240V | 2.2 | 3 | 4 | 4.6 | 5.5 | 8.5 | 11 |
| 380/400V | 3 | 4 | 5.5 | 7.5 | 7.5 | 11 | 15 |
| 415V | 4 | 5.5 | 7 | 8 | 10 | 14.5 | 19 |
| 440V | 4.5 | 5.5 | 7.5 | 8.4 | 10.5 | 15.5 | 20 |
| 500V | 3.5 | 4.5 | 7 | 7.5 | 12 | 17.5 | 23 |
| 660/690V | 3.5 | 4.5 | 6.5 | 7 | 11 | 14 | 17 |
| 1000V | — | — | — | — | — | — | — |

AC-4 Operation

| | | | | | | | |
|--|-----|-----|-----|-----|-----|-----|-----|
| Rated Operational Current, 50/60 Hz ^① (I_e) in amperes | | | | | | | |
| 220/230V | 5 | 6 | 7 | 7 | 10 | 13 | 15 |
| 240V | 5 | 6 | 7 | 7 | 10 | 13 | 15 |
| 380/400V | 5 | 6 | 7 | 7 | 10 | 13 | 15 |
| 415V | 5 | 6 | 7 | 7 | 10 | 13 | 15 |
| 440V | 5 | 6 | 7 | 7 | 10 | 13 | 15 |
| 500V | 4.5 | 5 | 6 | 6 | 10 | 13 | 15 |
| 660/690V | 4 | 4.5 | 5 | 5 | 8 | 10 | 12 |
| 1000V | — | — | — | — | — | — | — |
| Rated power (P) in kilowatts | | | | | | | |
| 220/230V | 1 | 1.5 | 2 | 2 | 2.5 | 3.5 | 4 |
| 240V | 1.5 | 1.6 | 2.2 | 2.2 | 3 | 4 | 4.5 |
| 380/400V | 2.2 | 2.5 | 3 | 3 | 4.5 | 6 | 7 |
| 415V | 2.3 | 2.8 | 3.4 | 3.4 | 5 | 6.5 | 7.5 |
| 440V | 2.4 | 3 | 3.6 | 3.6 | 5.5 | 7 | 8 |
| 500V | 2.5 | 2.8 | 3.5 | 3.5 | 6 | 8 | 9 |
| 660/690V | 2.9 | 3.6 | 4.4 | 4.4 | 6.5 | 8.5 | 10 |
| 1000V | — | — | — | — | — | — | — |

AC-6A Operation

| | |
|-------------------|---|
| Transformer Loads | Values are application specific. Calculation is $I_{eAC-3} = X / 6 * I_e$ Transformer where X is the inrush current of the transformer and I_e Transformer is the nominal current. ^② |
|-------------------|---|

AC-6B Operation

| | | | | | | | |
|---|-------------------------------------|----|----|----|----|----|----|
| Capacitor Loads Individual compensation rated operational current I_e of three-phase capacitors in amperes Up to 525V 690V | See Page B-46 for Capacitor Ratings | | | | | | |
| Maximum inrush current peak ($x I_e$) | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Component Lifesaving (Operations) | — | — | — | — | — | — | — |
| Maximum Operating Frequency (ops/hr) | — | — | — | — | — | — | — |

^① At maximum permissible ambient temperature.

^② Example —

The transformer has a nominal current of 10A with an inrush current of 18 times the nominal current. So, the contactor must have an AC-3 current of $18/6 \times 10A = 30A$. Using an XTCE032C (32A AC-3) contactor is recommended.

Table B-115. AC Ratings (Continued)

| Description | XTCE040D | XTCE050D | XTCE065D | XTCE080F | XTCE095F | XTCE115G | XTCE150G |
|--|----------|----------|----------|----------|----------|----------|----------|
| AC-1 Operation | | | | | | | |
| Conventional Free Air Thermal Current, 3-Pole, 50 – 60 Hz | | | | | | | |
| Open | | | | | | | |
| at 40°C (I _{th}) | 60A | 80A | 98A | 110A | 130A | 160A | 190A |
| at 50°C (I _{th}) | 57A | 71A | 88A | 98A | 125A | 142A | 180A |
| at 55°C (I _{th}) | 55A | 68A | 83A | 94A | 115A | 135A | 170A |
| at 60°C (I _{th}) | 50A | 65A | 80A | 90A | 110A | 130A | 160A |
| Enclosed | 45A | 58A | 72A | 80A | 100A | 115A | 144A |
| Conventional Free Air Thermal Current, 1-Pole (I _{th}) | | | | | | | |
| Open | 125A | 162A | 200A | 225A | 275A | 325A | 400A |
| Enclosed | 112A | 145A | 180A | 200A | 250A | 285A | 360A |

AC-3 Operation

| | | | | | | | |
|---|------|------|----|------|----|-----|-----|
| Rated Operational Current, 50/60 Hz ^① (I _e) in amperes | | | | | | | |
| 220/230V | 40 | 50 | 65 | 80 | 95 | 115 | 150 |
| 240V | 40 | 50 | 65 | 80 | 95 | 115 | 150 |
| 380/400V | 40 | 50 | 65 | 80 | 95 | 115 | 150 |
| 415V | 40 | 50 | 65 | 80 | 95 | 115 | 150 |
| 440V | 40 | 50 | 65 | 80 | 95 | 115 | 150 |
| 500V | 40 | 50 | 65 | 80 | 95 | 115 | 150 |
| 660/690V | 25 | 32 | 37 | 65 | 80 | 93 | 100 |
| 1000V | — | — | — | — | — | — | — |
| Rated power (P) in kilowatts | | | | | | | |
| 220/230V | 12.5 | 15.5 | 20 | 25 | 30 | 37 | 48 |
| 240V | 13.5 | 17 | 22 | 27.5 | 34 | 40 | 52 |
| 380/400V | 18.5 | 22 | 30 | 37 | 45 | 55 | 75 |
| 415V | 24 | 30 | 39 | 43 | 57 | 70 | 91 |
| 440V | 25 | 32 | 41 | 51 | 60 | 75 | 95 |
| 500V | 28 | 36 | 47 | 58 | 70 | 85 | 110 |
| 660/690V | 23 | 30 | 35 | 63 | 75 | 90 | 96 |
| 1000V | — | — | — | — | — | — | — |

AC-4 Operation

| | | | | | | | |
|---|-----|-----|-----|----|----|----|----|
| Rated Operational Current, 50/60 Hz ^① (I _e) in amperes | | | | | | | |
| 220/230V | 18 | 21 | 25 | 40 | 50 | 55 | 65 |
| 240V | 18 | 21 | 25 | 40 | 50 | 55 | 65 |
| 380/400V | 18 | 21 | 25 | 40 | 50 | 55 | 65 |
| 415V | 18 | 21 | 25 | 40 | 50 | 55 | 65 |
| 440V | 18 | 21 | 25 | 40 | 50 | 55 | 65 |
| 500V | 18 | 21 | 25 | 40 | 50 | 55 | 65 |
| 660/690V | 14 | 17 | 20 | 40 | 50 | 45 | 50 |
| 1000V | — | — | — | — | — | — | — |
| Rated power (P) in kilowatts | | | | | | | |
| 220/230V | 5 | 6 | 7 | 12 | 16 | 17 | 20 |
| 240V | 5.5 | 6.5 | 7.5 | 13 | 17 | 19 | 22 |
| 380/400V | 9 | 10 | 12 | 20 | 26 | 28 | 33 |
| 415V | 9.5 | 11 | 13 | 24 | 30 | 33 | 39 |
| 440V | 10 | 12 | 14 | 25 | 32 | 35 | 41 |
| 500V | 11 | 13 | 16 | 29 | 36 | 40 | 47 |
| 660/690V | 12 | 14 | 17 | 26 | 35 | 43 | 48 |
| 1000V | — | — | — | — | — | — | — |

AC-6A Operation

| | |
|-------------------|--|
| Transformer Loads | Values are application specific. Calculation is I _{eAC-3} = X / 6 * I _e Transformer where X is the inrush current of the transformer and I _e Transformer is the nominal current. ^② |
|-------------------|--|

AC-6B Operation

| | | | | | | | |
|--|-------------------------------------|----|----|----|----|----|----|
| Capacitor Loads Individual compensation rated operational current I _e of three-phase capacitors in amperes Up to 525V 690V | See Page B-46 for Capacitor Ratings | | | | | | |
| Maximum inrush current peak (x I _e) | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Component Lifesaving (Operations) | — | — | — | — | — | — | — |
| Maximum Operating Frequency (ops/hr) | — | — | — | — | — | — | — |

① At maximum permissible ambient temperature.

② Example —

The transformer has a nominal current of 10A with an inrush current of 18 times the nominal current. So, the contactor must have an AC-3 current of 18/6 x 10A = 30A. Using an XTCE032C (32A AC-3) contactor is recommended.

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Contactors and Starters

Table B-115. AC Ratings (Continued)

| Description | XTCE185L | XTCE225L | XTCE250L | XTCE300M | XTCE400M | XTCE500M | XTCE580N |
|---|--|----------|----------|----------|----------|----------|----------|
| AC-1 Operation | | | | | | | |
| Conventional Free Air Thermal Current, 3-Pole, 50 – 60 Hz | | | | | | | |
| at 40°C (I _{th}) | 337 | 386 | 429 | 490 | 612 | 857 | 980 |
| at 50°C (I _{th}) | 301 | 345 | 383 | 438 | 548 | 767 | 876 |
| at 55°C (I _{th}) | 287 | 329 | 366 | 418 | 522 | 731 | 836 |
| at 60°C (I _{th}) | 275 | 315 | 350 | 400 | 500 | 700 | 800 |
| Conventional Free Air Thermal Current, 1-Pole (I _{th}) | 685 | 785 | 875 | 1000 | 1250 | 1750 | 2000 |
| AC-3 Operation | | | | | | | |
| Rated Operational Current, 50/60 Hz ^① (I _e) in amperes | | | | | | | |
| 220/230V | 185 | 225 | 250 | 300 | 400 | 500 | 580 |
| 240V | 185 | 225 | 250 | 300 | 400 | 500 | 580 |
| 380/400V | 185 | 225 | 250 | 300 | 400 | 500 | 580 |
| 415V | 185 | 225 | 250 | 300 | 400 | 500 | 580 |
| 440V | 185 | 225 | 250 | 300 | 400 | 500 | 580 |
| 500V | 185 | 225 | 250 | 300 | 400 | 500 | 580 |
| 660/690V | 185 | 225 | 250 | 300 | 400 | 500 | 580 |
| 1000V | 76 | 76 | 76 | 95 | 95 | 95 | 435 |
| Rated power (P) in kilowatts | | | | | | | |
| 220/230V | 55 | 70 | 75 | 90 | 125 | 155 | 185 |
| 240V | 62 | 75 | 85 | 100 | 132 | 170 | 200 |
| 380/400V | 90 | 110 | 132 | 160 | 200 | 250 | 315 |
| 415V | 110 | 132 | 148 | 180 | 240 | 300 | 348 |
| 440V | 115 | 142 | 157 | 190 | 255 | 345 | 370 |
| 500V | 132 | 160 | 180 | 215 | 290 | 360 | 420 |
| 660/690V | 175 | 215 | 240 | 286 | 344 | 344 | 560 |
| 1000V | 108 | 108 | 108 | 132 | 132 | 132 | 600 |
| AC-4 Operation | | | | | | | |
| Rated Operational Current, 50/60 Hz ^① (I _e) in amperes | | | | | | | |
| 220/230V | 136 | 164 | 200 | 240 | 296 | 360 | 456 |
| 240V | 136 | 164 | 200 | 240 | 296 | 360 | 456 |
| 380/400V | 136 | 164 | 200 | 240 | 296 | 360 | 456 |
| 415V | 136 | 164 | 200 | 240 | 296 | 360 | 456 |
| 440V | 136 | 164 | 200 | 240 | 296 | 360 | 456 |
| 500V | 136 | 164 | 200 | 240 | 296 | 360 | 456 |
| 660/690V | 136 | 164 | 200 | 240 | 296 | 296 | 456 |
| 1000V | 76 | 76 | 76 | 95 | 95 | 95 | 348 |
| Rated power (P) in kilowatts | | | | | | | |
| 220/230V | 41 | 51 | 62 | 75 | 92 | 112 | 143 |
| 240V | 45 | 54 | 68 | 82 | 101 | 122 | 156 |
| 380/400V | 75 | 90 | 110 | 132 | 160 | 200 | 250 |
| 415V | 80 | 96 | 117 | 142 | 176 | 216 | 274 |
| 440V | 85 | 102 | 125 | 151 | 186 | 229 | 290 |
| 500V | 96 | 116 | 143 | 172 | 214 | 260 | 330 |
| 660/690V | 127 | 155 | 189 | 229 | 283 | 344 | 440 |
| 1000V | 108 | 108 | 108 | 132 | 132 | 132 | 509 |
| AC-6A Operation | | | | | | | |
| Transformer Loads | Values are application specific. Calculation is I _{eAC-3} = X / 6 * I _e Transformer where X is the inrush current of the transformer and I _e Transformer is the nominal current. ^② | | | | | | |
| AC-6B Operation | | | | | | | |
| Capacitor Loads | | | | | | | |
| Individual compensation rated operational current I _e of three-phase capacitors in amperes | | | | | | | |
| Up to 525V | 220 | 220 | 220 | 307 | 307 | 307 | 463 |
| 690V | 133 | 133 | 133 | 177 | 177 | 177 | 265 |
| Maximum inrush current peak (x I _e) | 30 | 30 | 30 | 30 | 30 | 30 | 30 |
| Component Lifesaving (Operations) | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 | 100,000 |
| Maximum Operating Frequency (ops/hr) | 200 | 200 | 200 | 200 | 200 | 200 | 200 |

^① At maximum permissible ambient temperature.

^② Example —

The transformer has a nominal current of 10A with an inrush current of 18 times the nominal current. So, the contactor must have an AC-3 current of 18/6 x 10A = 30A. Using an XTCE032C (32A AC-3) contactor is recommended.

Table B-115. AC Ratings (Continued)

| Description | XTCE650N | XTCE750N | XTCE820N | XTCEC10N | XTCEC14P | XTCEC20R |
|--|----------|----------|----------|----------|----------|----------|
| AC-1 Operation | | | | | | |
| Conventional Free Air Thermal Current, 3-Pole, 50 – 60 Hz | | | | | | |
| at 40°C (I _{th}) | 1041 | 1102 | 1225 | 1225 | 1714 | 2450 |
| at 50°C (I _{th}) | 931 | 986 | 1095 | 1095 | 1533 | 2190 |
| at 55°C (I _{th}) | 888 | 940 | 1044 | 1044 | 1462 | 2089 |
| at 60°C (I _{th}) | 850 | 900 | 1000 | 1000 | 1400 | 2000 |
| Conventional Free Air Thermal Current, 1-Pole (I _{th}) | 2125 | 2250 | 2500 | 2500 | 3500 | 5000 |

AC-3 Operation

| | | | | | | |
|--|-----|-----|-----|------|---|---|
| Rated Operational Current, 50/60 Hz (I _e) in amperes | | | | | | |
| 220/230V | 650 | 750 | 820 | 1000 | — | — |
| 240V | 650 | 750 | 820 | 1000 | — | — |
| 380/400V | 650 | 750 | 820 | 1000 | — | — |
| 415V | 650 | 750 | 820 | 1000 | — | — |
| 440V | 650 | 750 | 820 | 1000 | — | — |
| 500V | 650 | 750 | 820 | 1000 | — | — |
| 660/690V | 650 | 750 | 820 | 1000 | — | — |
| 1000V | 435 | 580 | 580 | 700 | — | — |
| Rated power (P) in kilowatts | | | | | | |
| 220/230V | 205 | 240 | 260 | 315 | — | — |
| 240V | 225 | 260 | 285 | 340 | — | — |
| 380/400V | 355 | 400 | 450 | 560 | — | — |
| 415V | 390 | 455 | 500 | 610 | — | — |
| 440V | 420 | 480 | 525 | 650 | — | — |
| 500V | 470 | 550 | 600 | 730 | — | — |
| 660/690V | 630 | 720 | 750 | 1000 | — | — |
| 1000V | 600 | 800 | 800 | 1000 | — | — |

AC-4 Operation

| | | | | | | |
|--|-----|-----|-----|------|---|---|
| Rated Operational Current, 50/60 Hz (I _e) in amperes | | | | | | |
| 220/230V | 512 | 576 | 656 | 800 | — | — |
| 240V | 512 | 576 | 656 | 800 | — | — |
| 380/400V | 512 | 576 | 656 | 800 | — | — |
| 415V | 512 | 576 | 656 | 800 | — | — |
| 440V | 512 | 576 | 656 | 800 | — | — |
| 500V | 512 | 576 | 656 | 800 | — | — |
| 660/690V | 512 | 576 | 656 | 800 | — | — |
| 1000V | 348 | 464 | 464 | 700 | — | — |
| Rated power (P) in kilowatts | | | | | | |
| 220/230V | 161 | 181 | 209 | 260 | — | — |
| 240V | 176 | 200 | 228 | 280 | — | — |
| 380/400V | 280 | 315 | 355 | 450 | — | — |
| 415V | 307 | 346 | 394 | 490 | — | — |
| 440V | 326 | 367 | 418 | 520 | — | — |
| 500V | 370 | 417 | 474 | 590 | — | — |
| 660/690V | 494 | 556 | 633 | 780 | — | — |
| 1000V | 509 | 678 | 678 | 1000 | — | — |

AC-6A Operation

| | | | | | | |
|-------------------|---|--|--|--|--|--|
| Transformer Loads | Values are application specific. Calculation is I _{eAC-3} = X / 6 * I _{e Transformer} where X is the inrush current of the transformer and I _{e Transformer} is the nominal current. ② | | | | | |
|-------------------|---|--|--|--|--|--|

AC-6B Operation

| | | | | | | |
|---|---------|---------|---------|---------|---|---|
| Capacitor Loads | | | | | | |
| Individual compensation rated operational current I _e of three-phase capacitors in amperes | | | | | | |
| Up to 525V | 463 | 463 | 463 | 463 | — | — |
| 690V | 265 | 265 | 265 | 265 | — | — |
| Maximum inrush current peak (x I _e) | 30 | 30 | 30 | 30 | — | — |
| Component Lifesaving (Operations) | 100,000 | 100,000 | 100,000 | 100,000 | — | — |
| Maximum Operating Frequency (ops/hr) | 200 | 200 | 200 | 200 | — | — |

① At maximum permissible ambient temperature.

② Example —

The transformer has a nominal current of 10A with an inrush current of 18 times the nominal current. So, the contactor must have an AC-3 current of 18/6 x 10A = 30A. Using an XTCE032C (32A AC-3) contactor is recommended.

B

Contactors and Starters

DC Ratings

Table B-116. DC Ratings — DC-1

| Description | XTCE007B | XTCE009B | XTCE012B XTCF020B | XTCE015B | XTCE018C | XTCE025C | XTCE032C |
|--|----------|----------|----------------------|----------|----------|----------|----------|
| Rated operation current {1} (I _e) in amperes | | | | | | | |
| 60V | 20 | 20 | 20 | 20 | 35 | 40 | 40 |
| 110V | 20 | 20 | 20 | 20 | 35 | 40 | 40 |
| 220V | 15 | 15 | 15 | 15 | 35 | 40 | 40 |
| 440V | 1 | 1.3 | 1.3 | 1.3 | 2.9 | 2.9 | 2.9 |
| | XTCE040D | XTCE050D | XTCE065D | XTCE080F | XTCE095F | XTCE115G | XTCE150G |
| 60V | 50 | 60 | 72 | 110 | 110 | 160 | 160 |
| 110V | 50 | 50 | 72 | 110 | 110 | 160 | 160 |
| 220V | 45 | 45 | 65 | 70 | 70 | 90 | 90 |
| 440V | 2.9 | 2.9 | 2.9 | 4.5 | 4.5 | 4.5 | 4.5 |
| | XTCE185L | XTCE225L | XTCE250L | XTCE300M | XTCE400M | XTCE500M | XTCE580N |
| 60V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 110V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 220V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 440V | 11 | 11 | 11 | 11 | 11 | 11 | — |
| | XTCE650N | XTCE750N | XTCE820N | XTCEC10N | XTCEC14P | XTCEC20R | — |
| 60V | — | — | — | — | — | — | — |
| 110V | — | — | — | — | — | — | — |
| 220V | — | — | — | — | — | — | — |
| 440V | — | — | — | — | — | — | — |

Table B-117. DC Ratings — DC-3

| Description | XTCE007B | XTCE009B | XTCE012B XTCF020B | XTCE015B | XTCE018C | XTCE025C | XTCE032C |
|--|----------|----------|----------------------|----------|----------|----------|----------|
| Rated operation current {1} (I _e) in amperes | | | | | | | |
| 60V | 20 | 20 | 20 | 20 | 35 | 35 | 40 |
| 110V | 20 | 20 | 20 | 20 | 35 | 35 | 40 |
| 220V | 1.5 | 1.5 | 1.5 | 1.5 | 10 | 10 | 25 |
| 440V | 0.2 | 0.2 | 0.2 | 0.2 | 0.6 | 0.6 | 0.6 |
| | XTCE040D | XTCE050D | XTCE065D | XTCE080F | XTCE095F | XTCE115G | XTCE150G |
| 60V | 50 | 60 | 72 | 110 | 110 | 160 | 160 |
| 110V | 50 | 50 | 72 | 110 | 110 | 160 | 160 |
| 220V | 25 | 25 | 35 | 35 | 35 | 40 | 40 |
| 440V | 0.6 | 0.6 | 0.6 | 1 | 1 | 1 | 1 |
| | XTCE185L | XTCE225L | XTCE250L | XTCE300M | XTCE400M | XTCE500M | XTCE580N |
| 60V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 110V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 220V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 440V | — | — | — | — | — | — | — |
| | XTCE650N | XTCE750N | XTCE820N | XTCEC10N | XTCEC14P | XTCEC20R | — |
| 60V | — | — | — | — | — | — | — |
| 110V | — | — | — | — | — | — | — |
| 220V | — | — | — | — | — | — | — |
| 440V | — | — | — | — | — | — | — |

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Table B-118. DC Ratings — DC-5

| Description | XTCE007B | XTCE009B | XTCE012B XTCF020B | XTCE015B | XTCE018C | XTCE025C | XTCE032C |
|--|----------|----------|----------------------|----------|----------|----------|----------|
| Rated operation current {1} (I _e) in amperes | | | | | | | |
| 60V | 20 | 20 | 20 | 20 | 35 | 35 | 40 |
| 110V | 20 | 20 | 20 | 20 | 35 | 35 | 40 |
| 220V | 1.5 | 1.5 | 1.5 | 1.5 | 10 | 10 | 25 |
| 440V | 0.2 | 0.2 | 0.2 | 0.2 | 0.6 | 0.6 | 0.6 |
| | XTCE040D | XTCE050D | XTCE065D | XTCE080F | XTCE095F | XTCE115G | XTCE150G |
| 60V | 50 | 60 | 72 | 110 | 110 | 160 | 160 |
| 110V | 50 | 50 | 72 | 110 | 110 | 160 | 160 |
| 220V | 25 | 25 | 35 | 35 | 35 | 40 | 40 |
| 440V | 0.6 | 0.6 | 0.6 | 1 | 1 | 1 | 1 |
| | XTCE185L | XTCE225L | XTCE250L | XTCE300M | XTCE400M | XTCE500M | XTCE580N |
| 60V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 110V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 220V | 300 | 300 | 300 | 400 | 400 | 400 | — |
| 440V | — | — | — | — | — | — | — |
| | XTCE650N | XTCE750N | XTCE820N | XTCEC10N | XTCEC14P | XTCEC20R | — |
| 60V | — | — | — | — | — | — | — |
| 110V | — | — | — | — | — | — | — |
| 220V | — | — | — | — | — | — | — |
| 440V | — | — | — | — | — | — | — |

B

Heat Loss

Table B-119. Current heat loss (3-Pole) in watts

| Description | XTCE007B | XTCE009B | XTCE012B XTCF020B | XTCE015B | XTCE018C | XTCE025C | XTCE032C |
|-------------------------------------|----------|----------|----------------------|----------|----------|----------|----------|
| Current heat loss (3-Pole) in watts | | | | | | | |
| at I _{th} | 3 | 3 | 3 | 3 | 7.3 | 9.6 | 12.1 |
| at I _e to AC-3/400V | 0.37 | 0.6 | 1.1 | 1.8 | 1.9 | 3.8 | 6.1 |
| Impedance per pole, mΩ | 2.5 | 2.5 | 2.5 | 2.5 | 2 | 2 | 2 |
| | XTCE040D | XTCE050D | XTCE065D | XTCE080F | XTCE095F | XTCE115G | XTCE150G |
| Current heat loss (3-Pole) in watts | | | | | | | |
| at I _{th} | 11.3 | 19 | 28.8 | 14.6 | 21.8 | 30.4 | 46.1 |
| at I _e to AC-3/400V | 7.2 | 11.3 | 19 | 11.5 | 16.2 | 23.8 | 40.5 |
| Impedance per pole, mΩ | 1.5 | 1.5 | 1.5 | 0.6 | 0.6 | 0.6 | 0.6 |
| | XTCE185L | XTCE225L | XTCE250L | XTCE300M | XTCE400M | XTCE500M | XTCE580N |
| Current heat loss (3-Pole) in watts | | | | | | | |
| at I _{th} | 79 | 108 | 95 | 123 | 188 | 236 | 227 |
| at I _e to AC-3/400V | 36 | 55 | 48 | 69 | 120 | 120 | 120 |
| Impedance per pole, mΩ | — | — | — | — | — | — | — |
| | XTCE650N | XTCE750N | XTCE820N | XTCEC10N | XTCEC14P | XTCEC20R | — |
| Current heat loss (3-Pole) in watts | | | | | | | |
| at I _{th} | 257 | 288 | 355 | 355 | 697 | 711 | — |
| at I _e to AC-3/400V | 150 | 200 | 239 | 355 | — | — | — |
| Impedance per pole, mΩ | — | — | — | — | — | — | — |

Contactors and Starters

Life Curves

B

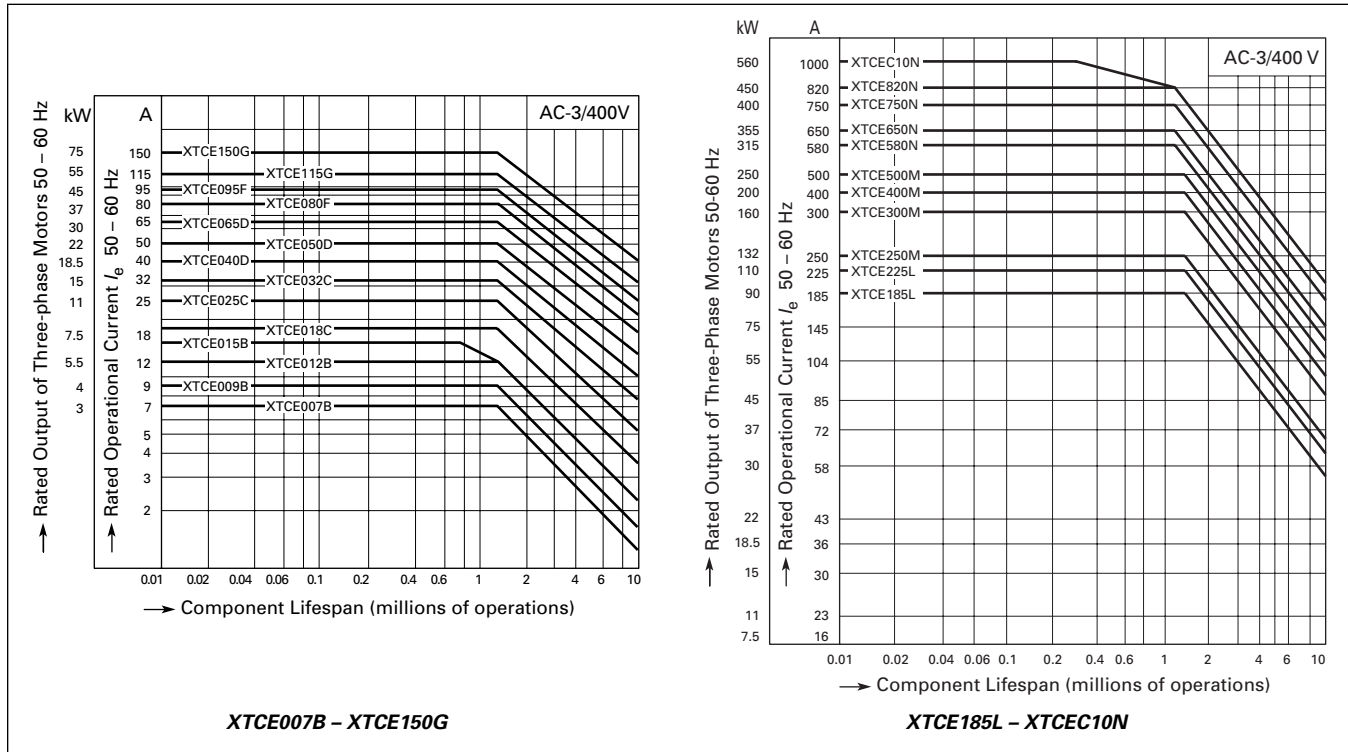


Figure B-39. Normal Switching Duty

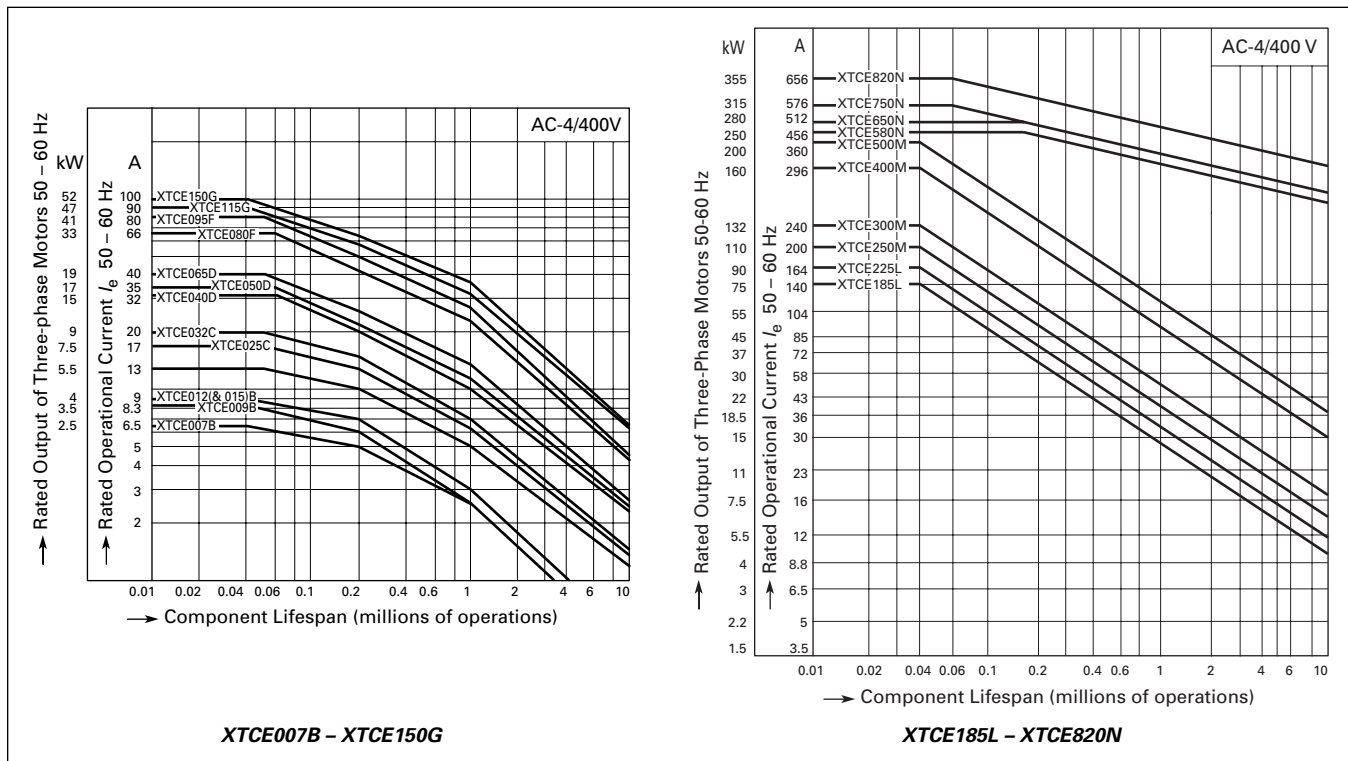


Figure B-40. Extreme Switching Duty

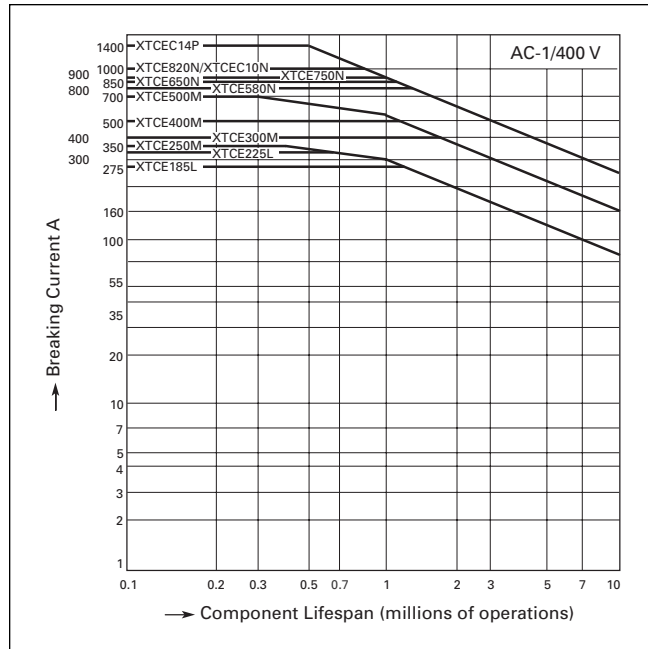


Figure B-41. Switching Duty for Non-motor loads, 3-pole, 4-pole — XTCE185L – XTCEC14P

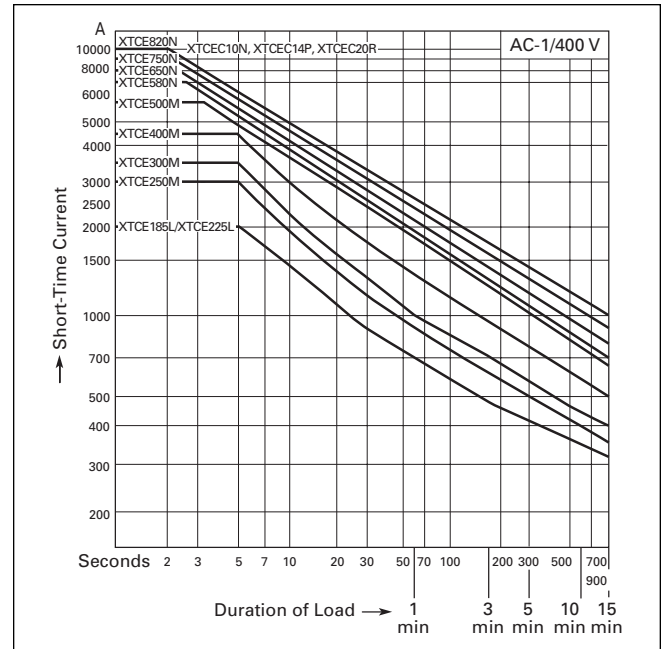
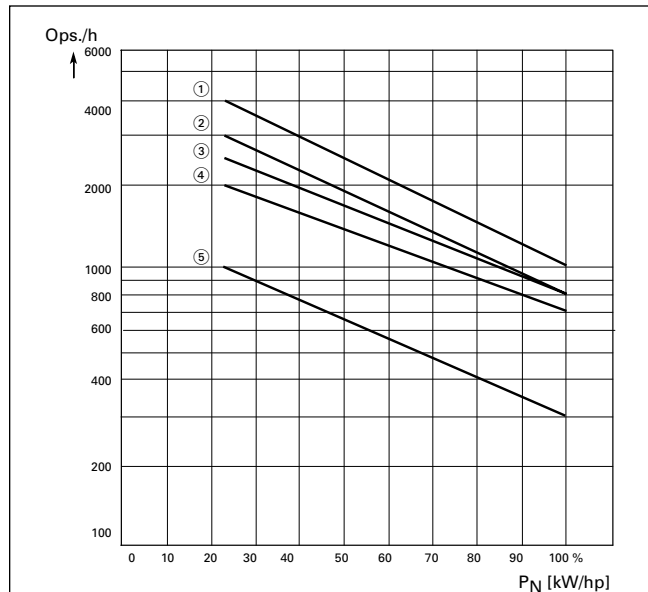


Figure B-42. Short-Time Loading, 3-pole — XTCE185L – XTCEC20R

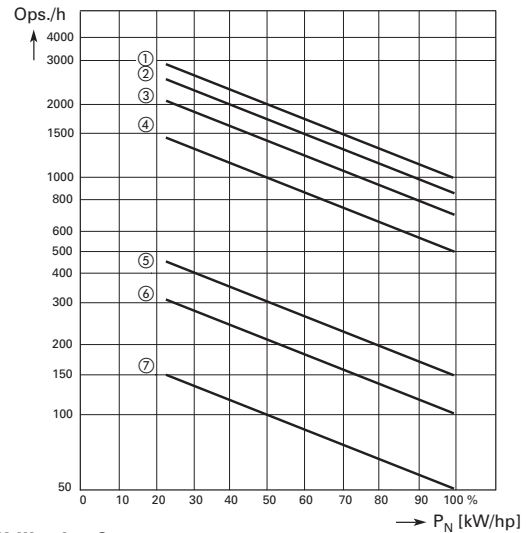


Utilization Category ①

| Type | Characteristic Curve Above | | |
|---------------------|----------------------------|------|--------------|
| | AC-1 | AC-3 | AC-2 AC-4 |
| XTCE007B – XTCE015B | 3 | 1 | 5 |
| XTCE018C – XTCE032C | 3 | 2 | 5 |
| XTCE040D – XTCE065D | 3 | 2 | 5 |
| XTCE080F – XTCE150G | 3 | 4 | 5 |

① P_N = max. motor rating (kW/hp) of the relevant contactor.
ops./h = max. number of operations per hour.

7 to 150 hp



Utilization Category ③

| Type | Characteristic Curve Above | | |
|----------|----------------------------|------|------|
| | AC-1 | AC-3 | AC-4 |
| XTCE185L | 2 | 1 | 6 |
| XTCE225L | 2 | 1 | 6 |
| XTCE250L | 2 | 1 | 6 |
| XTCE300M | 3 | 2 | 7 |
| XTCE400M | 3 | 2 | 7 |
| XTCE500M | 3 | 2 | 7 |
| XTCE580N | 3 | 4 | 5 |
| XTCE650N | 3 | 4 | 5 |
| XTCE750N | 3 | 4 | 5 |
| XTCE820N | 3 | 4 | 5 |

③ P_N = max. motor rating (kW/hp) of the relevant contactor.
ops./h = max. number of operations per hour.

185 to 820 hp

Figure B-43. Maximum Operating Frequency — Related to Rating and Utilization Category (400V)

B

Dimensions

XTCE Contactors

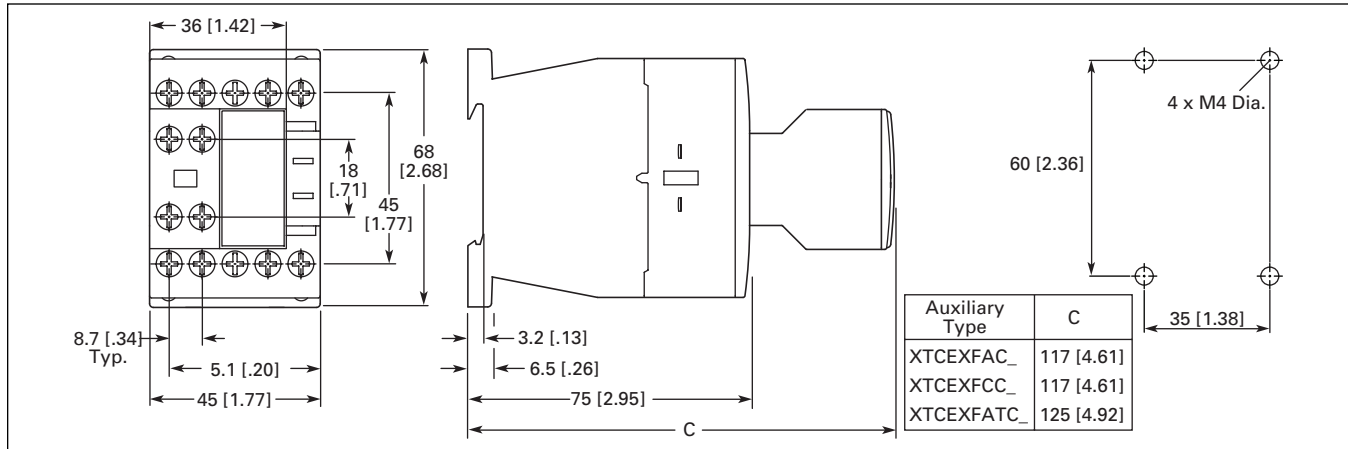


Figure B-44. Frame B, XTCE007B – XTCE015B Contactors with Screw Terminals (7 – 15A) — Approximate Dimensions in mm [in]

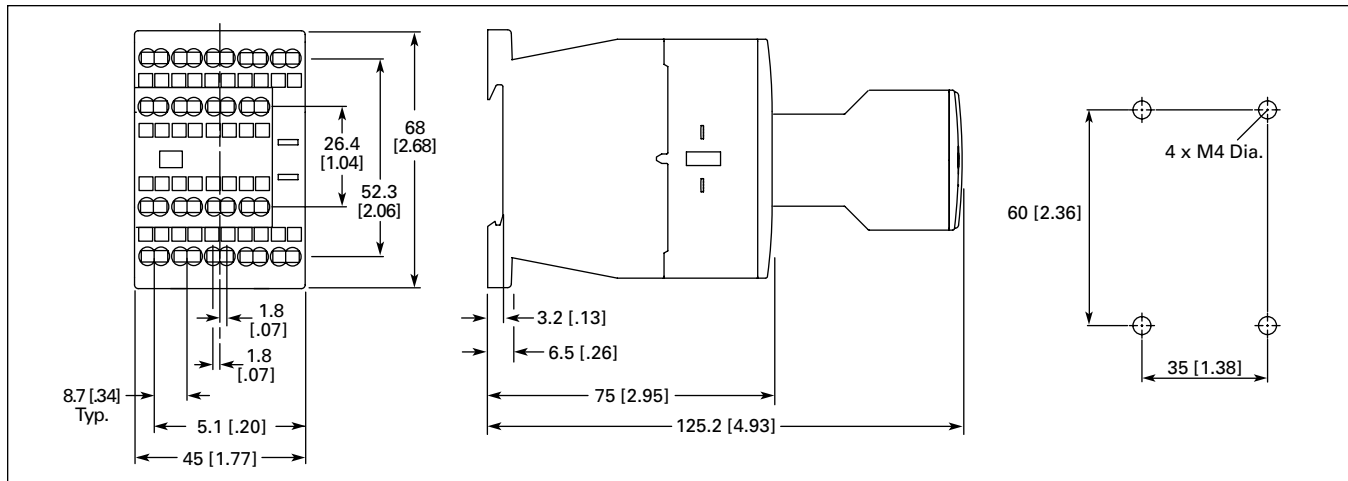


Figure B-45. Frame B, XTCEC007B – XTCEC012B Contactors with Spring Cage Terminals (7 – 12A) — Approximate Dimensions in mm [in]

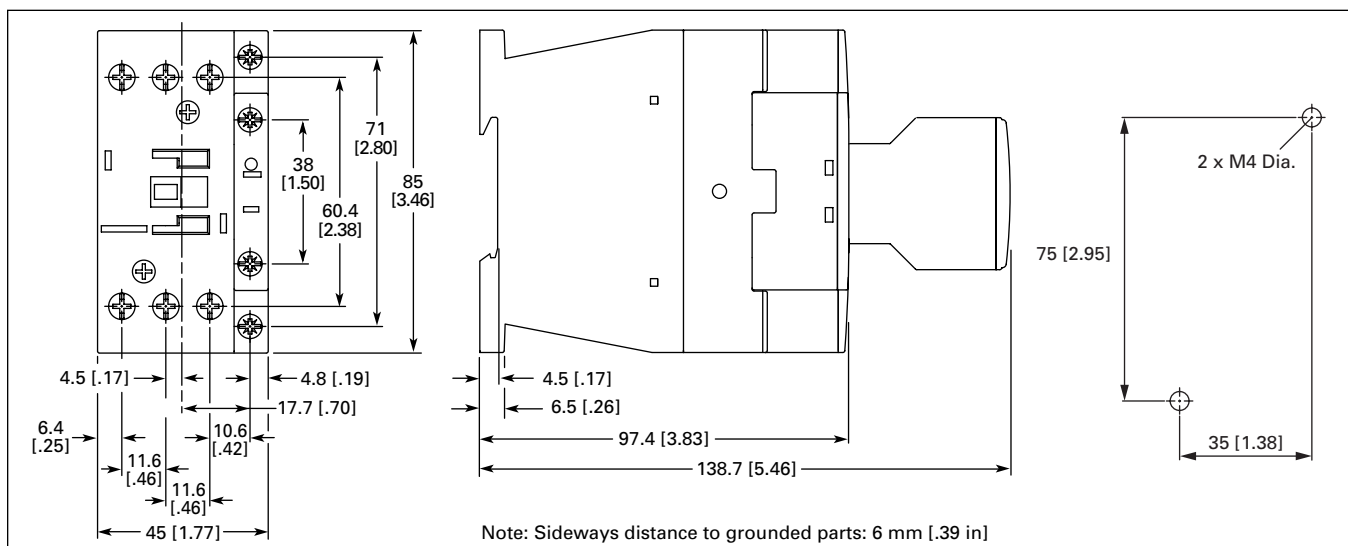
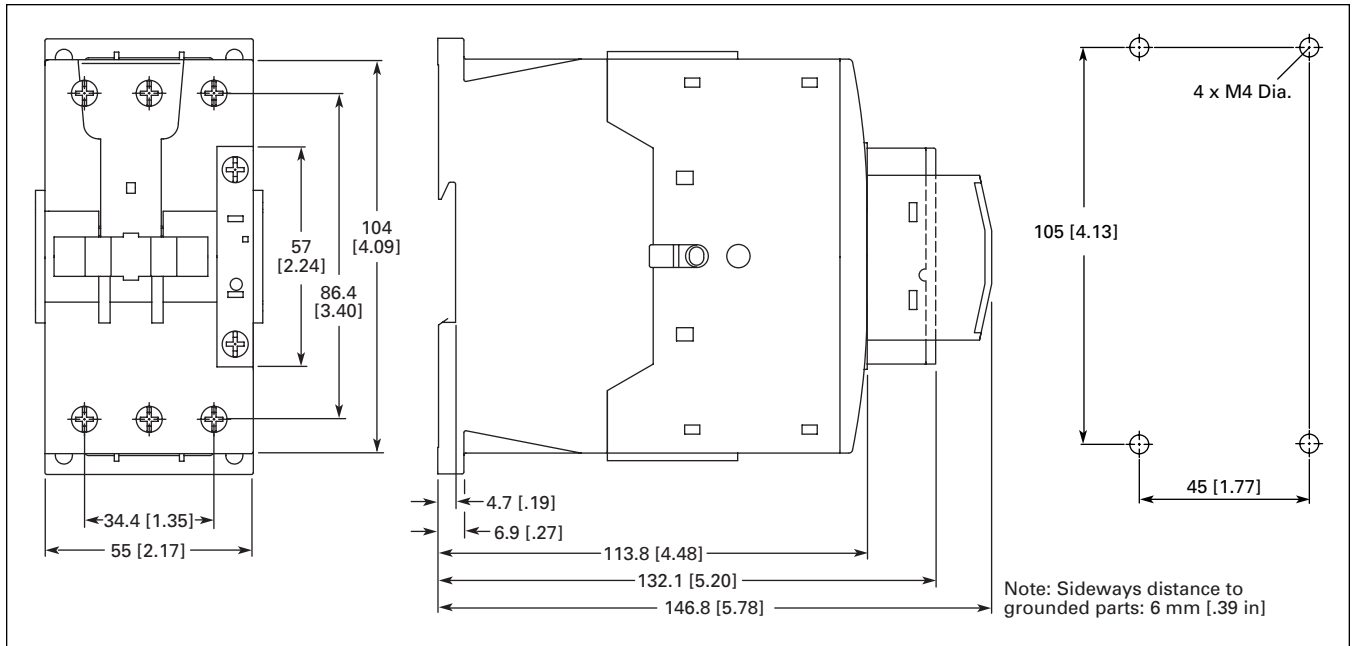


Figure B-46. Frame C, XTCE018C – XTCE032C Contactors (18 – 32A) — Approximate Dimensions in mm [in]

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Contactors and Starters



B

Figure B-47. Frame D, XTCE040D – XTCE065D Contactors (40 – 65A) — Approximate Dimensions in mm [in]

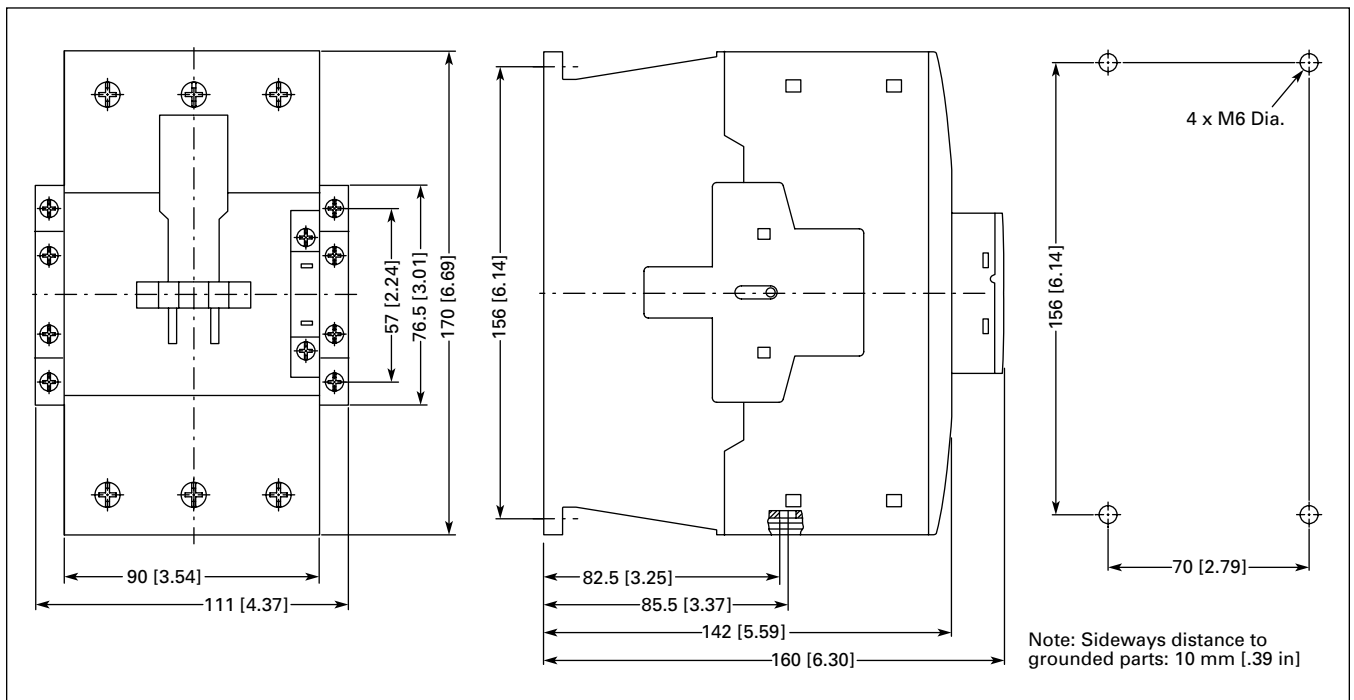
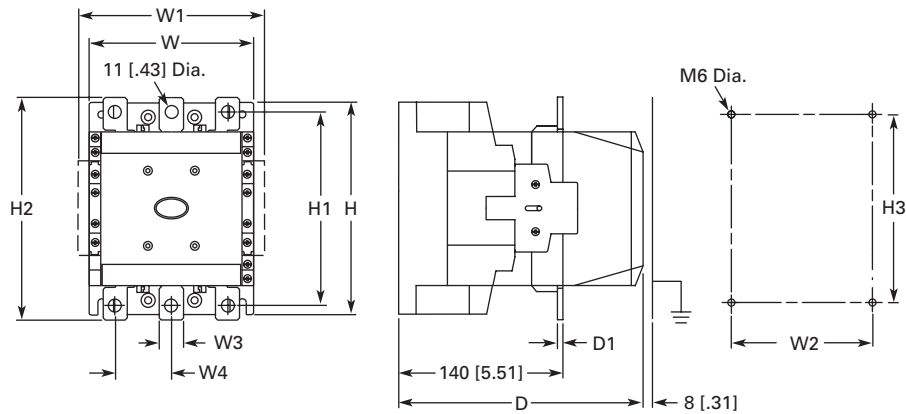


Figure B-48. Frame F – G, XTCE080F – XTCE150G Contactors (80 – 150A) — Approximate Dimensions in mm [in]

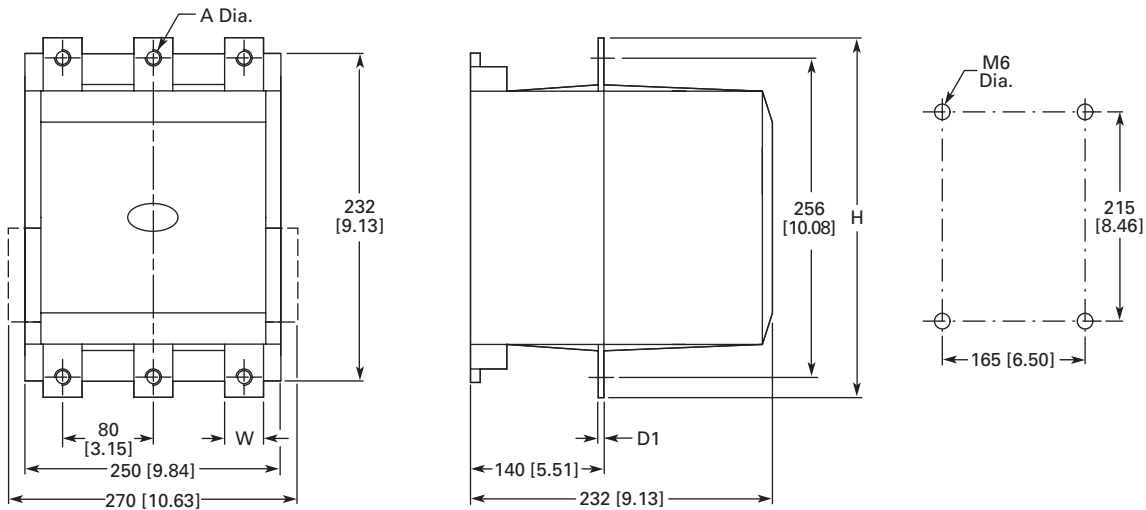
Contactors and Starters

B



| | W | W1 | W2 | W3 | W4 | H | H1 | H2 | H3 | D | D1 |
|-----------------------------|------------|------------|------------|----------|-----------|------------|------------|------------|------------|------------|---------|
| Frame L (185 – 250A) | 140 [5.51] | 160 [6.30] | 120 [4.72] | 20 [.79] | 48 [1.89] | 180 [7.09] | 164 [6.46] | 189 [7.44] | 160 [6.30] | 208 [8.19] | 5 [.20] |
| Frame M (300 – 500A) | 160 [6.30] | 180 [7.09] | 130 [5.12] | 25 [.98] | 48 [1.89] | 200 [7.87] | 184 [7.24] | 209 [8.23] | 180 [7.09] | 216 [8.50] | 6 [.24] |

Figure B-49. Frame L – M, XTCE185L – XTCE500M Contactors (185 – 500A) — Approximate Dimensions in mm [in]



| | W | H | D1 | A (Dia.) |
|-----------------|-----------|-------------|----------|------------|
| XTCE580N | 35 [1.38] | 286 [11.26] | 6 [.24] | 11 [.43] |
| XTCE650N | 35 [1.38] | 286 [11.26] | 6 [.24] | 11 [.43] |
| XTCE750N | 45 [1.77] | 296 [11.65] | 6 [.24] | 13.5 [.53] |
| XTCE820N | 45 [1.77] | 296 [11.65] | 6 [.24] | 13.5 [.53] |
| XTCEC10N | 45 [1.77] | 296 [11.65] | 10 [.40] | 13.5 [.53] |

Figure B-50. Frame N, XTCE580N – XTCEC10N Contactors (580 – 1000A) — Approximate Dimensions in mm [in]

Contactors and Starters

XTAE Starters with XTOB Overload Relay

B

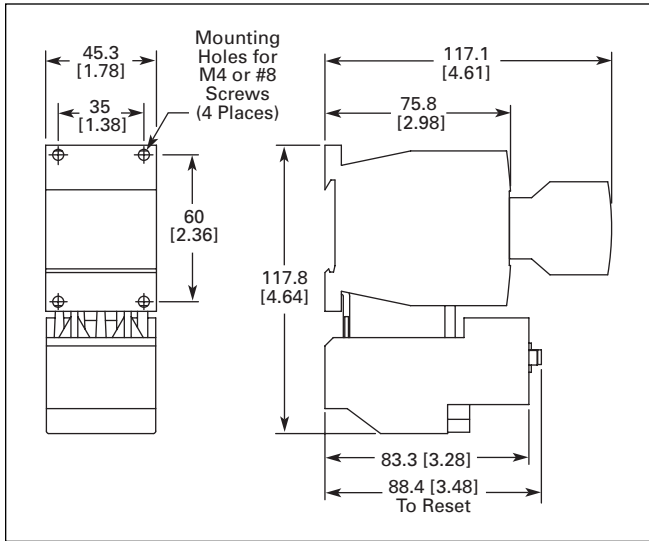


Figure B-53. Frame B, XTAE007B – XTAE012B Starters with XTOB (7 – 12A)

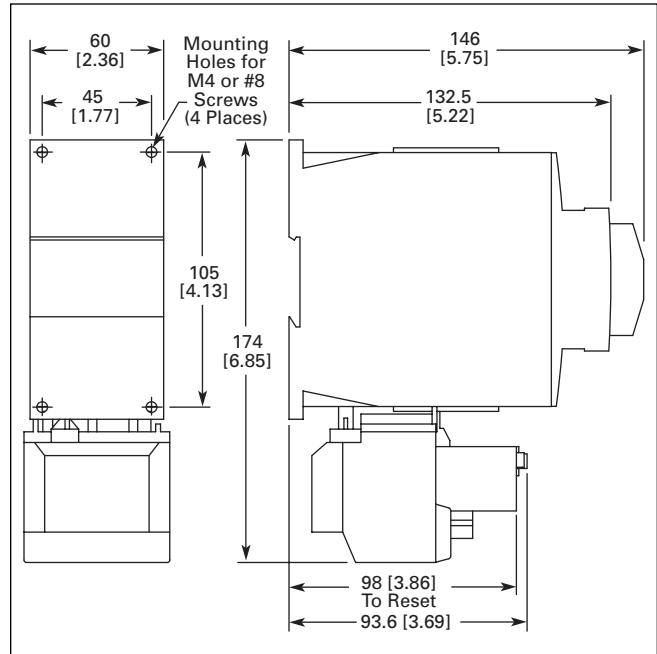


Figure B-55. Frame D, XTAE040D – XTAE065D Starters with XTOB (40 – 65A)

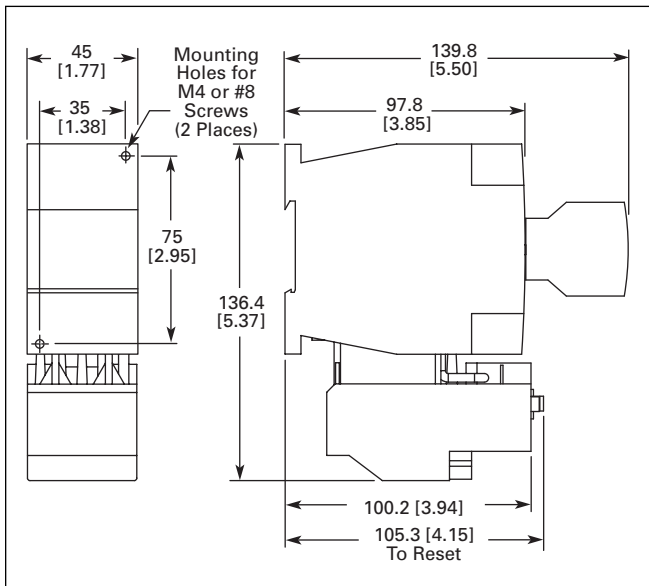


Figure B-54. Frame C, XTAE018C – XTAE032C Starters with XTOB (18 – 32A)

B

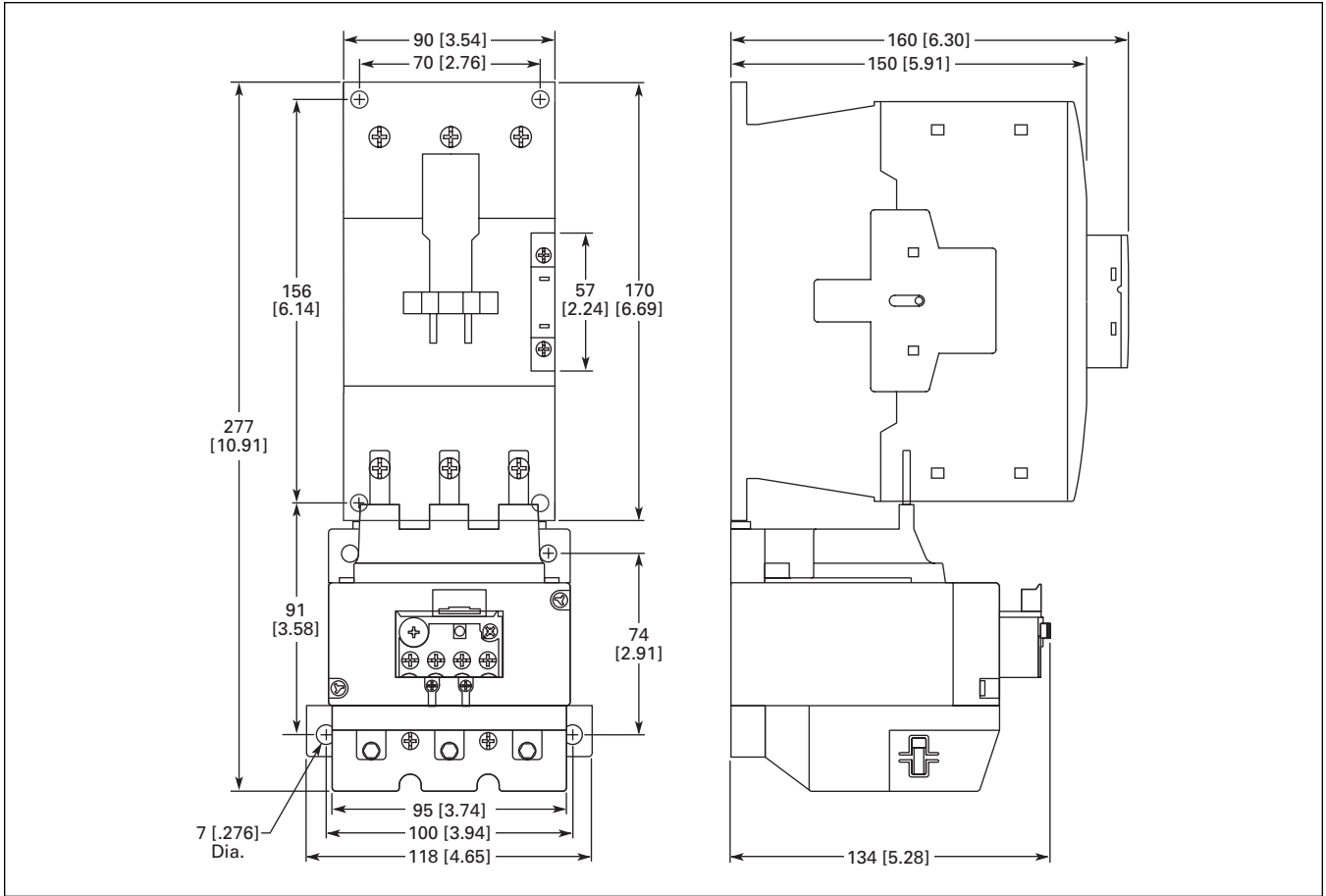


Figure B-56. Frame F – G, XTAE080F – XTAE150G Starters with XTOB (80 – 150A) — Approximate Dimensions in mm [in]

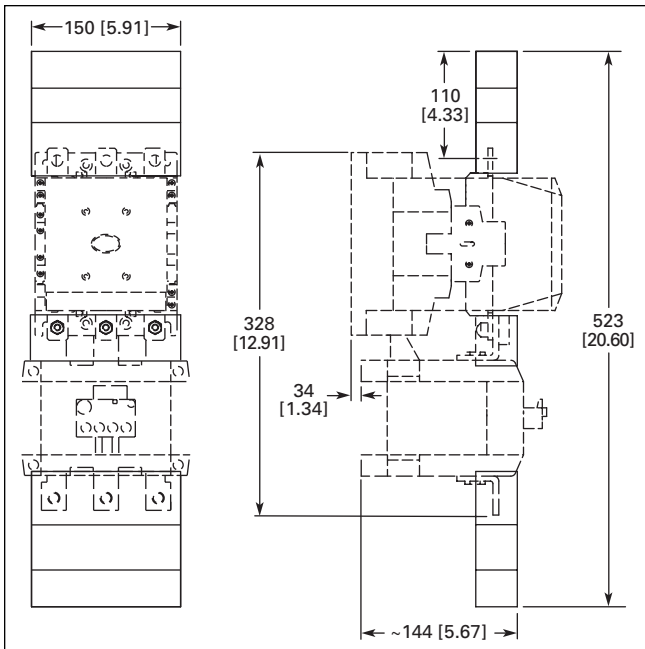


Figure B-57. Frame L, XTAE185L – XTAE250L Starters with XTOB (185 – 250A) — Approximate Dimensions in mm [in]

Contactors and Starters

XTAE Starters with C396 Overload Relay

B

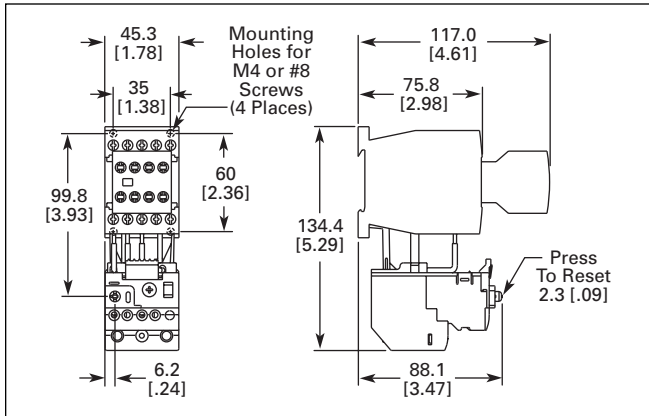


Figure B-58. Frame B, XTAE007B – XTAE012B Starters with C396 (0.1 – 15A)

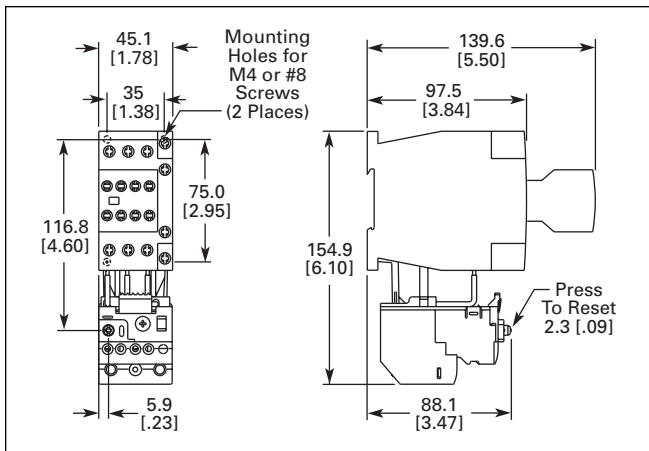


Figure B-59. Frame C, XTAE018C – XTAE032C Starters with C396 (0.1 – 32A)

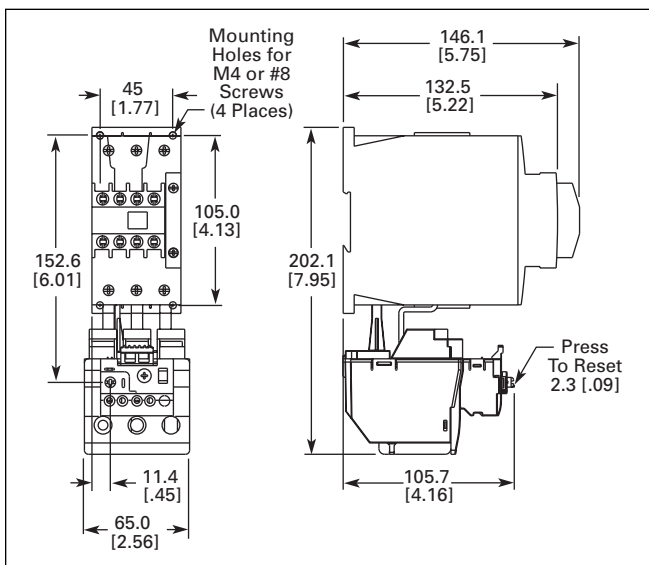


Figure B-60. Frame D, XTAE040D – XTAE065D Starters with C396 (15 – 75A)

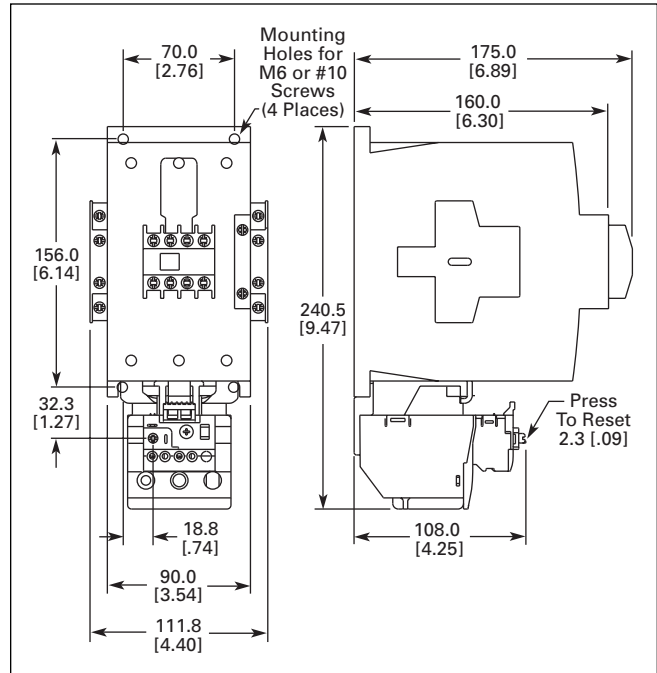


Figure B-61. Frame F and G, XTAE080F – XTAE115G Starters with C396 (22 – 110A)

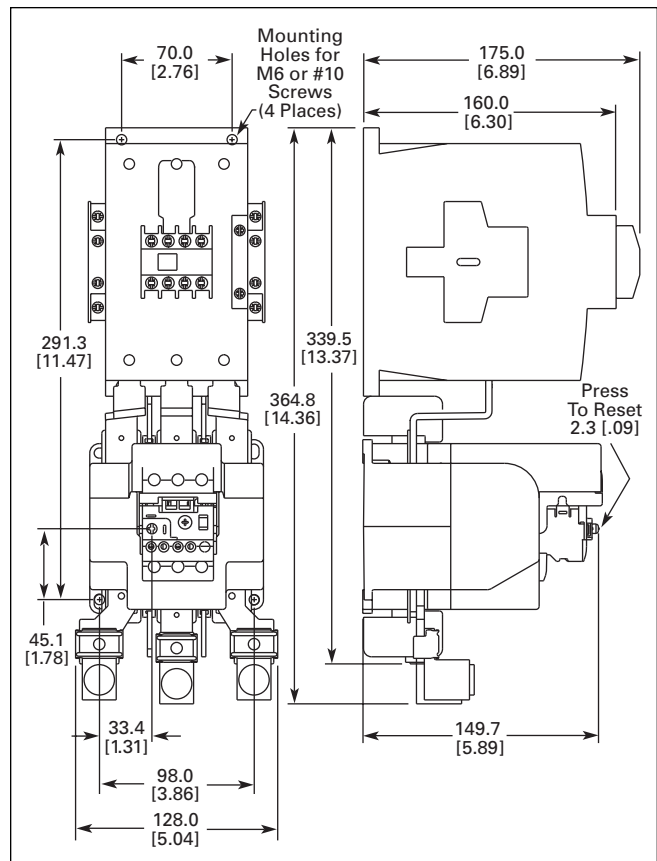
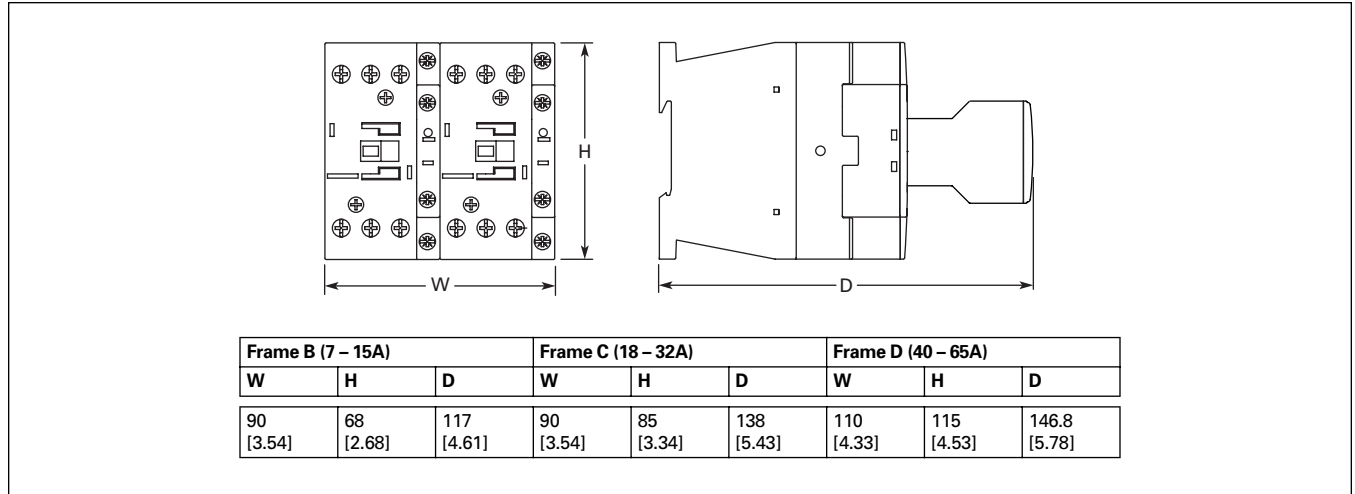


Figure B-62. Frame G, XTAE115G – XTAE150G Starters with C396 (30 – 150A)

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Contactors and Starters

Reversing Combination



B

Figure B-63. XTCR Reversing Combination Frame B – D — Approximate Dimensions in mm [in]

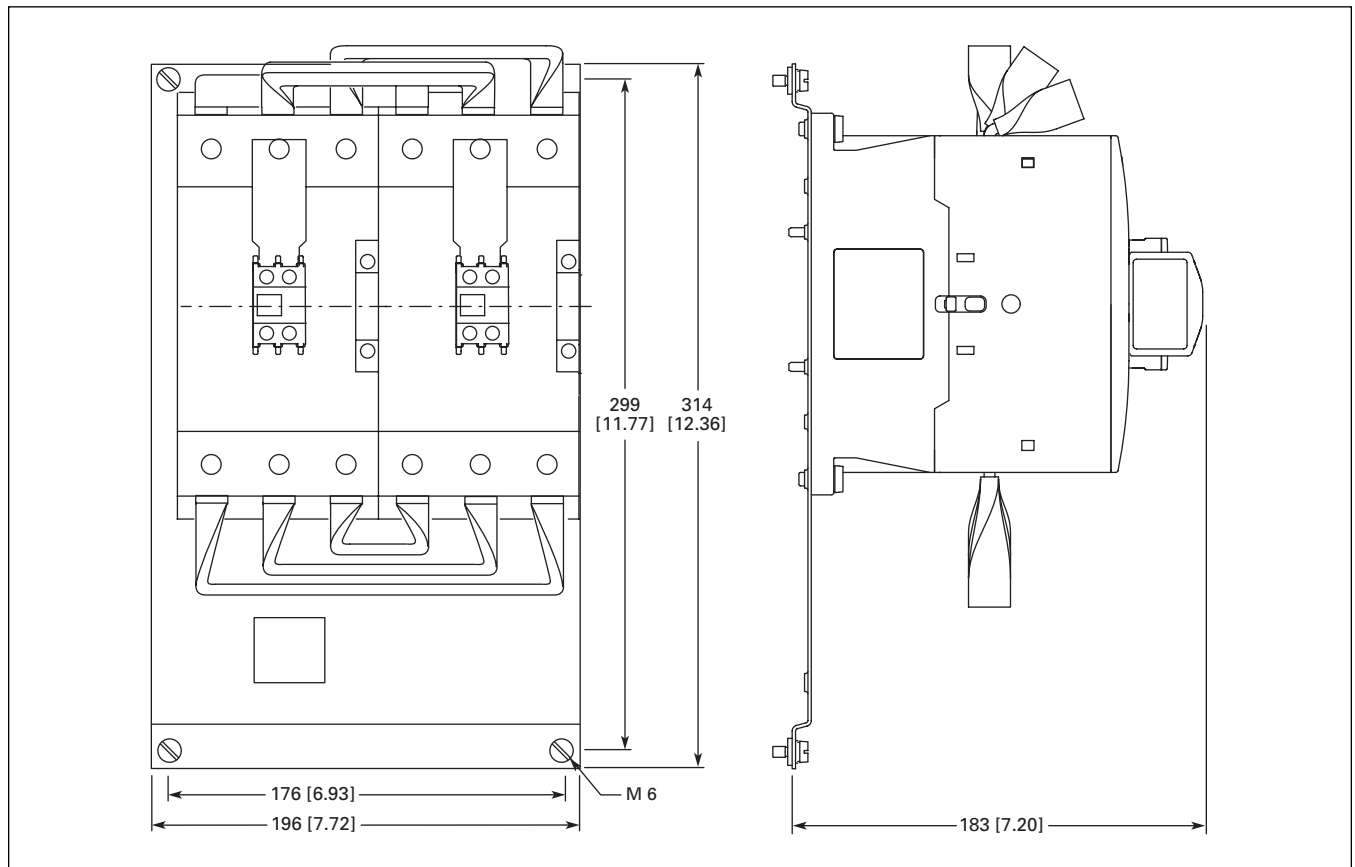


Figure B-64. XTCR Reversing Combination Frame F – G — Approximate Dimensions in mm [in]

Contactors and Starters

Star-Delta Combination

B

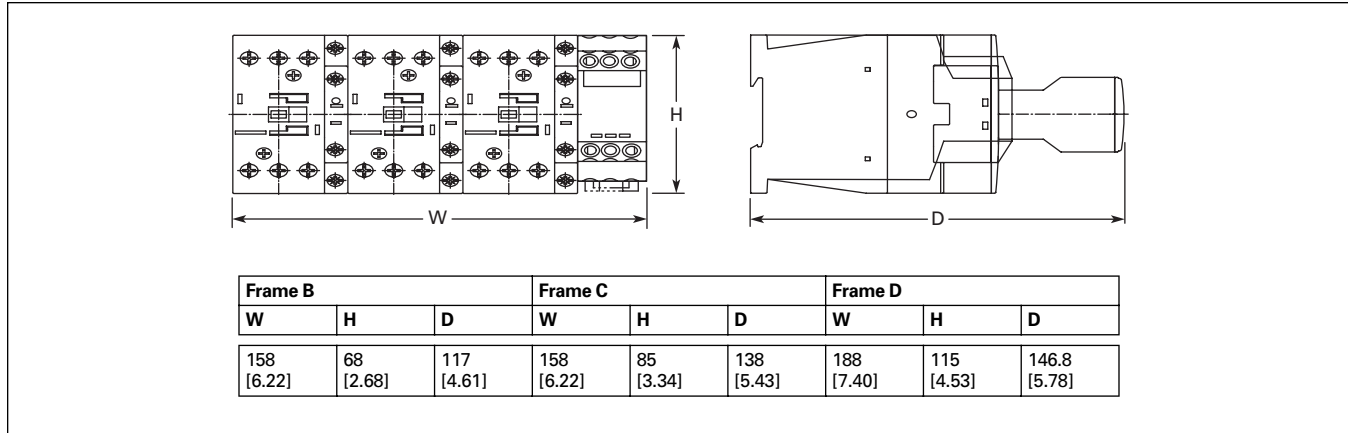


Figure B-65. Star-Delta Combination Frame B – D — Approximate Dimensions in mm [in]

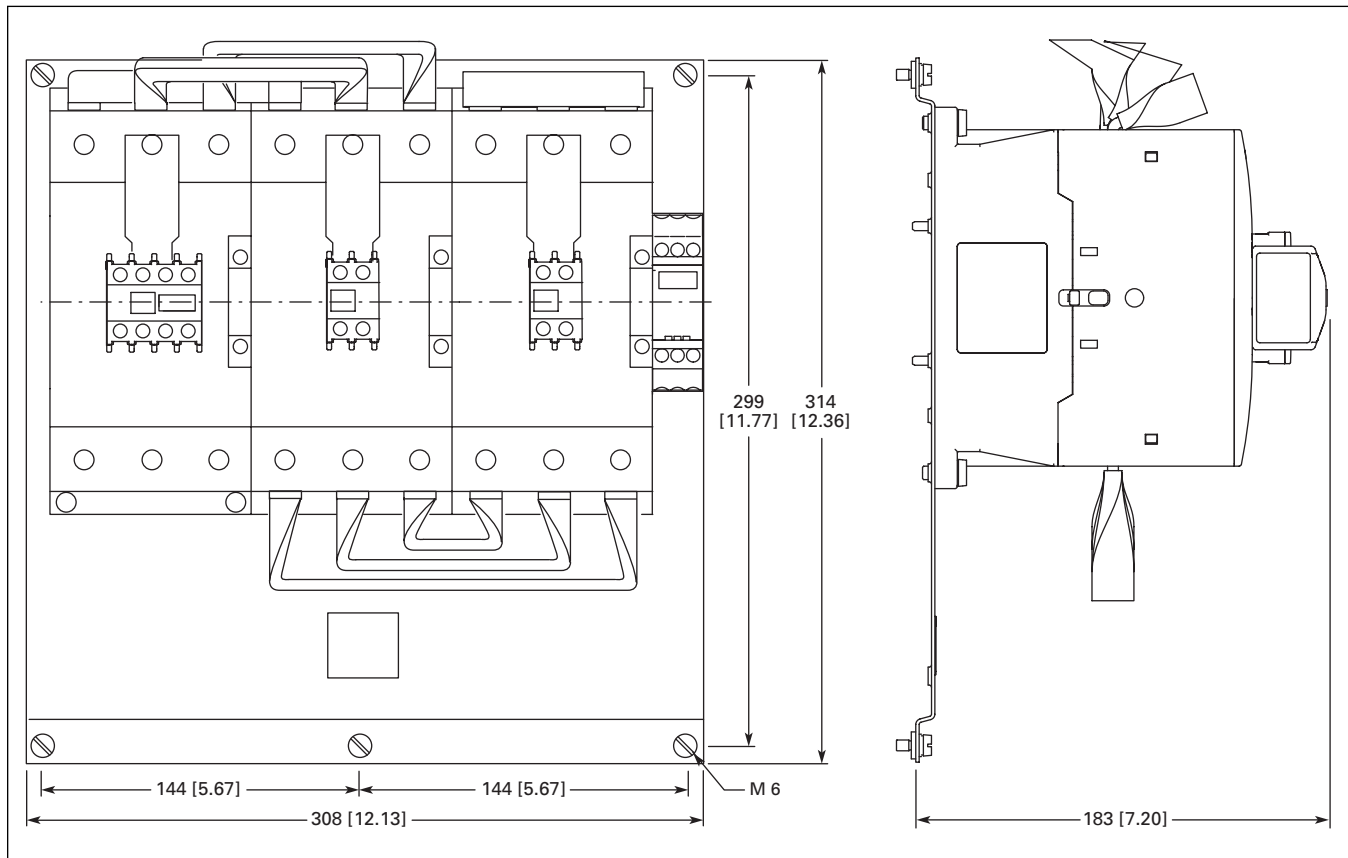


Figure B-66. Star-Delta Combination Frame F – G — Approximate Dimensions in mm [in]

Mechanical Interlock

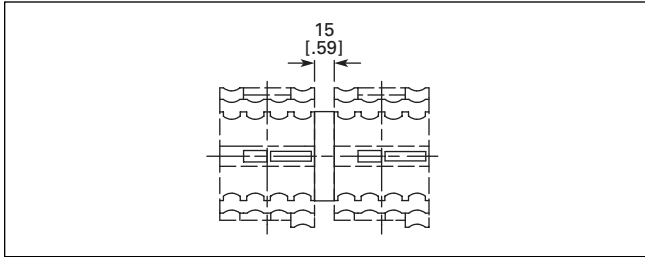


Figure B-67. Frame L – M. XTCEXMLM Mechanical Interlock — Approximate Dimensions in mm [in]

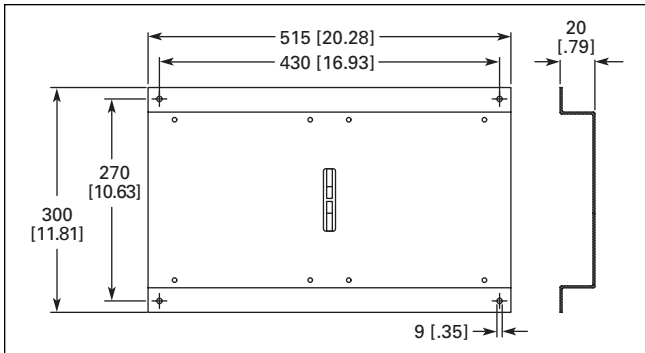
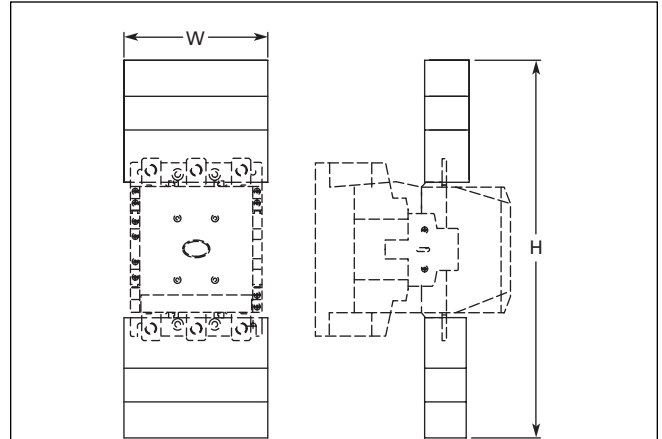


Figure B-68. XTCEXMLN — Approximate Dimensions in mm [in]

Contactor with Terminal Shroud



| XTCE185L, XTCE225L, XTCE250L | | XTCE300M, XTCE400M | | XTCE500M | | XTCE580N, XTCE650N, XTCE750N, XTCE820N, XTCEC10N | |
|------------------------------------|----------------|-----------------------|----------------|---------------|----------------|--|----------------|
| W | H | W | H | W | H | W | H |
| 150 [5.91] | 384 [15.12] | 150 [5.91] | 404 [15.91] | 174 [6.85] | 426 [16.77] | 236 [9.29] | 506 [19.92] |

Figure B-69. Frame L – N Contactors, XTCE185L – XTCEC10N, with Terminal Shroud XTLEXTS — Approximate Dimensions in mm [in]

B

Contactors and Starters

Suppressor

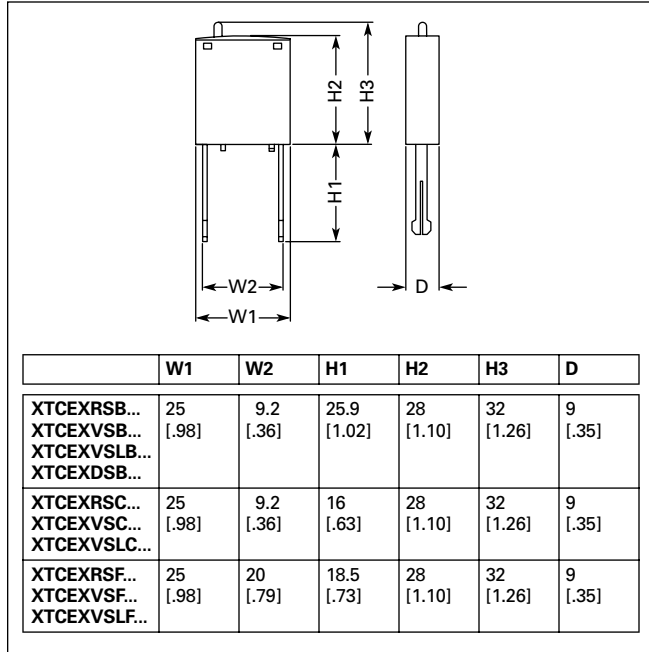


Figure B-70. Suppressor — Approximate Dimensions in mm [in]

Cable Terminal Block

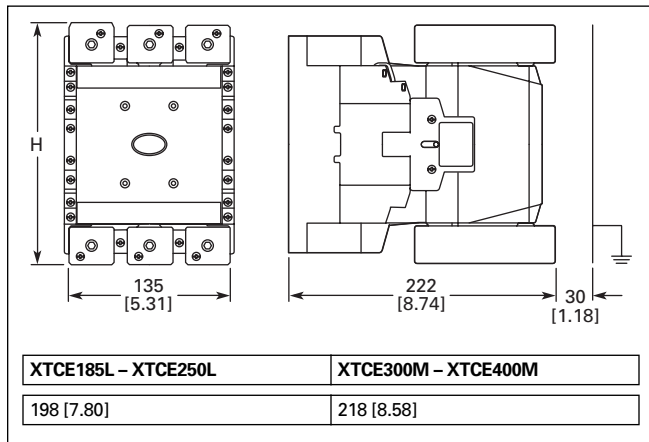


Figure B-71. XTCEXTLA — Approximate Dimensions in mm [in]

Flat Strip Conductor Terminals

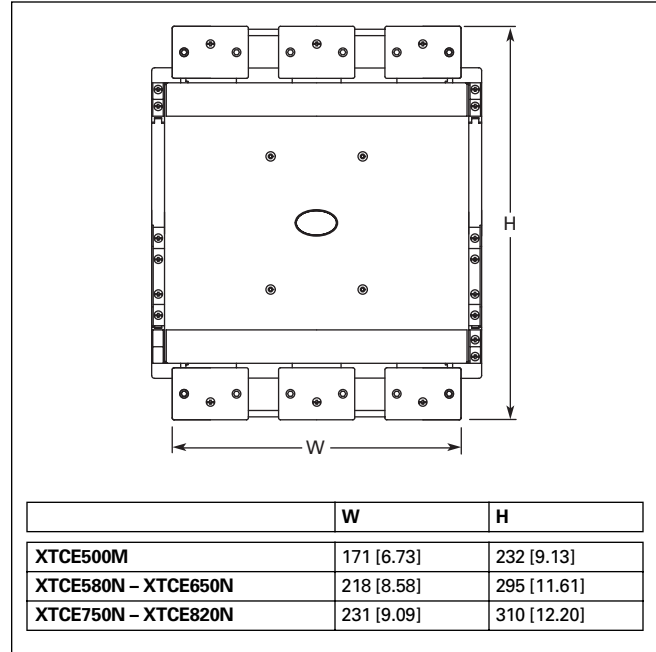


Figure B-72. XTCEXTFB — Approximate Dimensions in mm [in]

Three-Phase Commoning Link

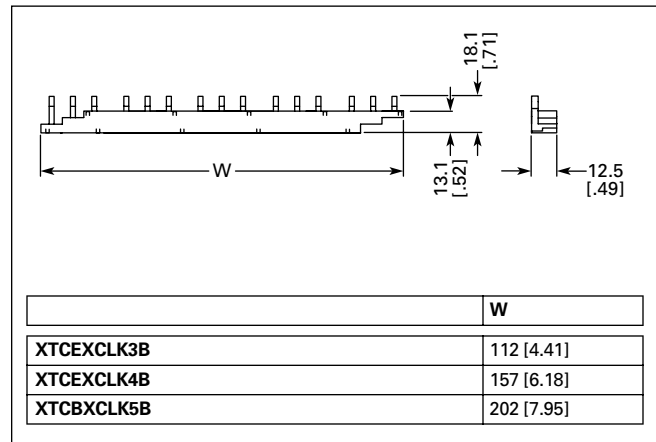


Figure B-73. Frame B Three-Phase Commoning Link — Approximate Dimensions in mm [in]

March 2007

Overload Relays — XTOB, XTOT

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XTOB Overload Relay



XTOT Overload Relay

B

Catalogue Number Selection


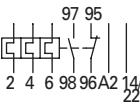

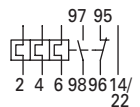

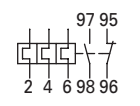

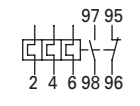

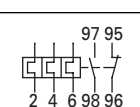

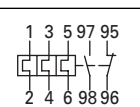
Table B-120. XTIEC Overload Relays — Catalogue Numbering System

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|----------|--|--|-------------------|----------------|--------------------|----------------|-------------------|----------------|------------------|-----------------|----------------|-----------------|------------------|------------------|------------------|--|----------------|----------------|--------------|----------------|---------------|-----------------|---------------|-----------------|----------------|------------------|----------------|------------------|-------------------|------------------|--------------------|----------------|-------------------|----------------|------------------|----------------|----------------|-----------------|------------------|------------------|------------------|------------------|----------------|------------------|--------------|------------------|---------------|------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-----------------|---------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|--|----------------|--|----------------|--|----------------|--|-----------------|--|--|
| XT | OB | P 16 | B | C 1 | S | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Designation XT = XT Line of IEC Control | Type OB = Bimetallic Overload Relay OT = Current Transformer Overload Relay | Overload Release | | Trip Class C1 = Class 10A C3 = Class 30 | Mounting BLANK = Direct to Contactor S = Separate Mount | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;"><i>Frame B</i></td> <td style="padding: 2px;"><i>Frame G</i></td> </tr> <tr> <td style="padding: 2px;">P16 = 0.1 – 0.16A</td> <td style="padding: 2px;">035 = 25 – 35A</td> </tr> <tr> <td style="padding: 2px;">P24 = 0.16 – 0.24A</td> <td style="padding: 2px;">050 = 35 – 50A</td> </tr> <tr> <td style="padding: 2px;">P40 = 0.24 – 0.4A</td> <td style="padding: 2px;">070 = 50 – 70A</td> </tr> <tr> <td style="padding: 2px;">P60 = 0.4 – 0.6A</td> <td style="padding: 2px;">100 = 70 – 100A</td> </tr> <tr> <td style="padding: 2px;">001 = 0.6 – 1A</td> <td style="padding: 2px;">125 = 95 – 125A</td> </tr> <tr> <td style="padding: 2px;">1P6 = 1.0 – 1.6A</td> <td style="padding: 2px;">150 = 120 – 150A</td> </tr> <tr> <td style="padding: 2px;">2P4 = 1.6 – 2.4A</td> <td></td> </tr> <tr> <td style="padding: 2px;">004 = 2.4 – 4A</td> <td style="padding: 2px;"><i>Frame L</i></td> </tr> <tr> <td style="padding: 2px;">006 = 4 – 6A</td> <td style="padding: 2px;">070 = 50 – 70A</td> </tr> <tr> <td style="padding: 2px;">010 = 6 – 10A</td> <td style="padding: 2px;">100 = 70 – 100A</td> </tr> <tr> <td style="padding: 2px;">012 = 9 – 12A</td> <td style="padding: 2px;">125 = 95 – 125A</td> </tr> <tr> <td style="padding: 2px;">016 = 12 – 16A</td> <td style="padding: 2px;">160 = 120 – 160A</td> </tr> <tr> <td style="padding: 2px;"><i>Frame C</i></td> <td style="padding: 2px;">220 = 160 – 220A</td> </tr> <tr> <td style="padding: 2px;">P16 = 0.1 – 0.16A</td> <td style="padding: 2px;">250 = 200 – 250A</td> </tr> <tr> <td style="padding: 2px;">P24 = 0.16 – 0.24A</td> <td style="padding: 2px;"><i>Frame M</i></td> </tr> <tr> <td style="padding: 2px;">P40 = 0.24 – 0.4A</td> <td style="padding: 2px;">063 = 42 – 63A</td> </tr> <tr> <td style="padding: 2px;">P60 = 0.4 – 0.6A</td> <td style="padding: 2px;">090 = 60 – 90A</td> </tr> <tr> <td style="padding: 2px;">001 = 0.6 – 1A</td> <td style="padding: 2px;">125 = 85 – 125A</td> </tr> <tr> <td style="padding: 2px;">1P6 = 1.0 – 1.6A</td> <td style="padding: 2px;">160 = 110 – 160A</td> </tr> <tr> <td style="padding: 2px;">2P4 = 1.6 – 2.4A</td> <td style="padding: 2px;">240 = 160 – 240A</td> </tr> <tr> <td style="padding: 2px;">004 = 2.4 – 4A</td> <td style="padding: 2px;">290 = 190 – 290A</td> </tr> <tr> <td style="padding: 2px;">006 = 4 – 6A</td> <td style="padding: 2px;">400 = 270 – 400A</td> </tr> <tr> <td style="padding: 2px;">010 = 6 – 10A</td> <td style="padding: 2px;">540 = 360 – 540A</td> </tr> <tr> <td style="padding: 2px;">016 = 10 – 16A</td> <td style="padding: 2px;"><i>Frame N</i></td> </tr> <tr> <td style="padding: 2px;">024 = 16 – 24A</td> <td style="padding: 2px;">063 = 42 – 63A</td> </tr> <tr> <td style="padding: 2px;">032 = 24 – 32A</td> <td style="padding: 2px;">090 = 60 – 90A</td> </tr> <tr> <td style="padding: 2px;"><i>Frame D</i></td> <td style="padding: 2px;">125 = 85 – 125A</td> </tr> <tr> <td 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| P16 = 0.1 – 0.16A | 035 = 25 – 35A | P24 = 0.16 – 0.24A | 050 = 35 – 50A | P40 = 0.24 – 0.4A | 070 = 50 – 70A | P60 = 0.4 – 0.6A | 100 = 70 – 100A | 001 = 0.6 – 1A | 125 = 95 – 125A | 1P6 = 1.0 – 1.6A | 150 = 120 – 150A | 2P4 = 1.6 – 2.4A | | 004 = 2.4 – 4A | <i>Frame L</i> | 006 = 4 – 6A | 070 = 50 – 70A | 010 = 6 – 10A | 100 = 70 – 100A | 012 = 9 – 12A | 125 = 95 – 125A | 016 = 12 – 16A | 160 = 120 – 160A | <i>Frame C</i> | 220 = 160 – 220A | P16 = 0.1 – 0.16A | 250 = 200 – 250A | P24 = 0.16 – 0.24A | <i>Frame M</i> | P40 = 0.24 – 0.4A | 063 = 42 – 63A | P60 = 0.4 – 0.6A | 090 = 60 – 90A | 001 = 0.6 – 1A | 125 = 85 – 125A | 1P6 = 1.0 – 1.6A | 160 = 110 – 160A | 2P4 = 1.6 – 2.4A | 240 = 160 – 240A | 004 = 2.4 – 4A | 290 = 190 – 290A | 006 = 4 – 6A | 400 = 270 – 400A | 010 = 6 – 10A | 540 = 360 – 540A | 016 = 10 – 16A | <i>Frame N</i> | 024 = 16 – 24A | 063 = 42 – 63A | 032 = 24 – 32A | 090 = 60 – 90A | <i>Frame D</i> | 125 = 85 – 125A | 010 = 6 – 10A | 160 = 110 – 160A | 016 = 10 – 16A | 240 = 160 – 240A | 024 = 16 – 24A | 290 = 190 – 290A | 040 = 24 – 40A | 400 = 270 – 400A | 057 = 40 – 57A | 540 = 360 – 540A | 065 = 50 – 65A | 630 = 420 – 630A | <i>Frame F</i> | | 035 = 25 – 35A | | 050 = 35 – 50A | | 070 = 50 – 70A | | 100 = 70 – 100A | | Frame Size Designation B = 45 mm C = 45 mm D = 55 mm G = 90 mm L = 140 mm BLANK = XTOT Only |
| <i>Frame B</i> | <i>Frame G</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P16 = 0.1 – 0.16A | 035 = 25 – 35A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P24 = 0.16 – 0.24A | 050 = 35 – 50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P40 = 0.24 – 0.4A | 070 = 50 – 70A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P60 = 0.4 – 0.6A | 100 = 70 – 100A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 001 = 0.6 – 1A | 125 = 95 – 125A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1P6 = 1.0 – 1.6A | 150 = 120 – 150A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2P4 = 1.6 – 2.4A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 004 = 2.4 – 4A | <i>Frame L</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 006 = 4 – 6A | 070 = 50 – 70A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 010 = 6 – 10A | 100 = 70 – 100A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 012 = 9 – 12A | 125 = 95 – 125A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 016 = 12 – 16A | 160 = 120 – 160A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame C</i> | 220 = 160 – 220A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P16 = 0.1 – 0.16A | 250 = 200 – 250A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P24 = 0.16 – 0.24A | <i>Frame M</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P40 = 0.24 – 0.4A | 063 = 42 – 63A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P60 = 0.4 – 0.6A | 090 = 60 – 90A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 001 = 0.6 – 1A | 125 = 85 – 125A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1P6 = 1.0 – 1.6A | 160 = 110 – 160A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2P4 = 1.6 – 2.4A | 240 = 160 – 240A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 004 = 2.4 – 4A | 290 = 190 – 290A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 006 = 4 – 6A | 400 = 270 – 400A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 010 = 6 – 10A | 540 = 360 – 540A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 016 = 10 – 16A | <i>Frame N</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 024 = 16 – 24A | 063 = 42 – 63A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 032 = 24 – 32A | 090 = 60 – 90A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame D</i> | 125 = 85 – 125A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 010 = 6 – 10A | 160 = 110 – 160A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 016 = 10 – 16A | 240 = 160 – 240A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 024 = 16 – 24A | 290 = 190 – 290A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 040 = 24 – 40A | 400 = 270 – 400A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 057 = 40 – 57A | 540 = 360 – 540A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 065 = 50 – 65A | 630 = 420 – 630A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <i>Frame F</i> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 035 = 25 – 35A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 050 = 35 – 50A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 070 = 50 – 70A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 100 = 70 – 100A | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Overload Relays — XT0B, XTOT

Product Selection

Table B-121. Overload Relay

| | Overload Releases, I _r | Contact Sequence | Contact Configuration | For Use with Contactor Amp Range | Short-Circuit Protection (A) | | | | Catalogue Number | Price |
|---|-----------------------------------|---|-----------------------|----------------------------------|------------------------------|----------------------------|-------------------------|--------------|------------------|-------|
| | | | | | Fuse | | Maximum Circuit Breaker | CEC/NEC Fuse | | |
| | | | | | Type 1 Coordination, gG/gL | Type 2 Coordination, gG/gL | | | | |
| Frame B — Direct Mount | | | | | | | | | | |
|  | 0.1 – 0.16 |  | 1NO-1NC | 7 – 15A | 25 | 0.5 | 25 | 3 | XTOBP16BC1 | |
| | 0.16 – 0.24 | | 1NO-1NC | 7 – 15A | 25 | 1 | 25 | 3 | XTOBP24BC1 | |
| | 0.24 – 0.4 | | 1NO-1NC | 7 – 15A | 25 | 2 | 25 | 3 | XTOBP40BC1 | |
| | 0.4 – 0.6 | | 1NO-1NC | 7 – 15A | 25 | 4 | 25 | 3 | XTOBP60BC1 | |
| | 0.6 – 1 | | 1NO-1NC | 7 – 15A | 25 | 4 | 25 | 3 | XTOB001BC1 | |
| | 1 – 1.6 | | 1NO-1NC | 7 – 15A | 25 | 6 | 25 | 6 | XTOB1P6BC1 | |
| | 1.6 – 2.4 | | 1NO-1NC | 7 – 15A | 25 | 10 | 25 | 6 | XTOB2P4BC1 | |
| | 2.4 – 4 | | 1NO-1NC | 7 – 15A | 25 | 16 | 25 | 15 | XTOB004BC1 | |
| | 4 – 6 | | 1NO-1NC | 7 – 15A | 25 | 20 | 25 | 20 | XTOB006BC1 | |
| | 6 – 10 | | 1NO-1NC | 7 – 15A | 50 | 25 | 25 | 35 | XTOB010BC1 | |
| | 9 – 12 | | 1NO-1NC | 9 – 15A | 50 | 25 | 25 | 45 | XTOB012BC1 | |
| | 12 – 16 | | 1NO-1NC | 12 – 15A | 50 | 25 | 30 | 45 | XTOB016BC1 | |
| Frame C — Direct Mount | | | | | | | | | | |
|  | 0.1 – 0.16 |  | 1NO-1NC | 18 – 32A | 25 | 0.5 | 25 | 3 | XTOBP16CC1 | |
| | 0.16 – 0.24 | | 1NO-1NC | 18 – 32A | 25 | 1 | 25 | 3 | XTOBP24CC1 | |
| | 0.24 – 0.4 | | 1NO-1NC | 18 – 32A | 25 | 2 | 25 | 3 | XTOBP40CC1 | |
| | 0.4 – 0.6 | | 1NO-1NC | 18 – 32A | 25 | 4 | 25 | 3 | XTOBP60CC1 | |
| | 0.6 – 1 | | 1NO-1NC | 18 – 32A | 25 | 4 | 25 | 3 | XTOB001CC1 | |
| | 1 – 1.6 | | 1NO-1NC | 18 – 32A | 25 | 6 | 25 | 6 | XTOB1P6CC1 | |
| | 1.6 – 2.4 | | 1NO-1NC | 18 – 32A | 25 | 10 | 25 | 6 | XTOB2P4CC1 | |
| | 2.4 – 4 | | 1NO-1NC | 18 – 32A | 25 | 16 | 25 | 15 | XTOB004CC1 | |
| | 4 – 6 | | 1NO-1NC | 18 – 32A | 25 | 20 | 25 | 20 | XTOB006CC1 | |
| | 6 – 10 | | 1NO-1NC | 18 – 32A | 50 | 25 | 25 | 25 | XTOB010CC1 | |
| | 10 – 16 | | 1NO-1NC | 18 – 32A | 63 | 35 | 30 | 25 | XTOB016CC1 | |
| | 16 – 24 | | 1NO-1NC | 18 – 32A | 100 | 35 | 30 | 25 | XTOB024CC1 | |
| 24 – 32 | 1NO-1NC | 25 – 32A | 125 | 63 | 30 | 25 | XTOB032CC1 | | | |
| Frame D — Direct Mount | | | | | | | | | | |
|  | 6 – 10 |  | 1NO-1NC | 40 – 65A | 50 | 25 | 25 | 25 | XTOB010DC1 | |
| | 10 – 16 | | 1NO-1NC | 40 – 65A | 63 | 35 | 25 | 25 | XTOB016DC1 | |
| | 16 – 24 | | 1NO-1NC | 40 – 65A | 63 | 50 | 30 | 25 | XTOB024DC1 | |
| | 24 – 40 | | 1NO-1NC | 40 – 65A | 125 | 63 | 125 | 125 | XTOB040DC1 | |
| | 40 – 57 | | 1NO-1NC | 50 – 65A | 160 | 80 | 150 | 150 | XTOB057DC1 | |
| | 50 – 65 | | 1NO-1NC | 65A | 160 | 100 | 150 | 200 | XTOB065DC1 | |
| Frame F – G — Direct Mount | | | | | | | | | | |
|  | 25 – 35 |  | 1NO-1NC | 80 – 150A | 125 | 100 | 125 | 125 | XTOB035GC1 | |
| | 35 – 50 | | 1NO-1NC | 80 – 150A | 160 | 125 | 150 | 200 | XTOB050GC1 | |
| | 50 – 70 | | 1NO-1NC | 80 – 150A | 250 | 160 | 150 | 200 | XTOB070GC1 | |
| | 70 – 100 | | 1NO-1NC | 80 – 150A | 315 | 200 | 400 | 400 | XTOB100GC1 | |
| | 95 – 125 | | 1NO-1NC | 80 – 150A | 315 | 250 | 500 | 400 | XTOB125GC1 | |
| | 120 – 150 | | 1NO-1NC | 80 – 150A | 315 | 250 | 600 | 600 | XTOB150GC1 | |
| Frame F – G — Separate Mount | | | | | | | | | | |
|  | 25 – 35 |  | 1NO-1NC | 80 – 150A | 125 | 100 | 125 | 125 | XTOB035GC1S | |
| | 35 – 50 | | 1NO-1NC | 80 – 150A | 160 | 125 | 150 | 200 | XTOB050GC1S | |
| | 50 – 70 | | 1NO-1NC | 80 – 150A | 250 | 160 | 150 | 200 | XTOB070GC1S | |
| | 70 – 100 | | 1NO-1NC | 80 – 150A | 315 | 200 | 400 | 400 | XTOB100GC1S | |
| | 95 – 125 | | 1NO-1NC | 80 – 150A | 315 | 250 | 500 | 400 | XTOB125GC1S | |
| | 120 – 150 | | 1NO-1NC | 80 – 150A | 315 | 250 | 600 | 600 | XTOB150GC1S | |
| Frame L | | | | | | | | | | |
|  | 50 – 70 |  | 1NO-1NC | 185 – 250A | 250 | 160 | 150 | 200 | XTOB070LC1 | |
| | 70 – 100 | | 1NO-1NC | 185 – 250A | 315 | 200 | 400 | 400 | XTOB100LC1 | |
| | 95 – 125 | | 1NO-1NC | 185 – 250A | 315 | 250 | 500 | 400 | XTOB125LC1 | |
| | 120 – 160 | | 1NO-1NC | 185 – 250A | 400 | 250 | 600 | 600 | XTOB160LC1 | |
| | 160 – 220 | | 1NO-1NC | 185 – 250A | 400 ① | 315 ① | 800 | 800 | XTOB220LC1 | |
| | 200 – 250 | | 1NO-1NC | 225 – 250A | 400 ① | 315 ① | 600 | 700 | XTOB250LC1 | |

① For separate mounting, short circuit Type 1 rating is 500A and short circuit Type 2 rating is 400A.

Notes:

Short circuit protection: Observe the maximum permissible fuse of the contactor with direct device mounting. See MN03402001E for more information on overload relays for Frame B – G.

Trip Class: 10A

Suitable for protection of EEx e-motors. EC prototype test certificate available upon request.

Observe manuals MN03402001E and MN03407001E, see **Table B-125**.

Technical Data **Page B-97**
 Dimensions **Page B-99**
 Discount Symbol **MC7**

Table B-122. Current Transformer Operated Overload Relays ①

| | Overload Releases, I _r | Contact Sequence | Contact Configuration | For Use with Contactor Amp Range | Short-Circuit Protection (A) | | | | Catalogue Number | Price |
|-------------------------------------|-----------------------------------|------------------|-----------------------|----------------------------------|------------------------------|----------------------------|-----------------|--------------|------------------|-------|
| | | | | | Type 1 Coordination, gG/gL | Type 2 Coordination, gG/gL | Circuit Breaker | CEC/NEC Fuse | | |
| Frame M – N — Separate Mount | | | | | | | | | | |
| | 42 – 63 | | 1NO-1NC | 300 – 500A | — | — | 150 | 200 | XTOT063C3S | |
| | 60 – 90 | | 1NO-1NC | 300 – 500A | — | — | 250 | 250 | XTOT090C3S | |
| | 85 – 125 | | 1NO-1NC | 300 – 500A | — | — | 500 | 400 | XTOT125C3S | |
| | 110 – 160 | | 1NO-1NC | 300 – 500A | — | — | 600 | 600 | XTOT160C3S | |
| | 160 – 240 | | 1NO-1NC | 300 – 500A | — | — | 600 | 700 | XTOT240C3S | |
| | 190 – 290 | 1NO-1NC | 300 – 500A | — | — | 600 | 700 | XTOT290C3S | | |
| | 270 – 400 | 1NO1-1NC | 300 – 500A | — | — | 1000 | 1000 | XTOT400C3S | | |
| | 360 – 540 | 1NO-1NC | 500A | — | — | 600 | 1000 | XTOT540C3S | | |
| | 420 – 630 | 1NO-1NC | 630A | — | — | 600 | 1000 | XTOT630C3S | | |

① The main current parameters are defined by the main current wiring which is used.

Accessories

Table B-123. DIN Rail or Panel Mount Adapter, Frame C – D ②

| | For Use with... | Pkg. Qty. | Catalogue Number | Price |
|--|-----------------|-----------|------------------|-------|
| | XTOB...CC1 | 5 | XTOBXDINC | |
| | XTOB...DC1 | 1 | XTOBXDIND | |

② Can be snap fitted on a top hat rail (DIN rail) to IEC/EN 60715 or can be screw fitted.

Table B-124. Terminal Shroud

| | For Use with... | Catalogue Number | Price |
|--|--|------------------|-------|
| | XTOB...LC1 | XTOBXTSL | |
| | | | |
| | For direct mounting of ... | Catalogue Number | Price |
| | XTOB...LC1 to XTCE185L, XTCE225L or XTCE250L | XTOBXTSCL | |
| | | | |

Table B-125. Documentation — Manuals for Overload Monitoring of EEX e-motors

| Publication Number | For Use with... |
|--------------------|--------------------------|
| MN03402001E | XTOB...BC1 XTOB...CC1 |
| MN03407001E | XTOB...DC1 XTOB...GC1 |

B

Overload Relays — XTOB, XTOT

B

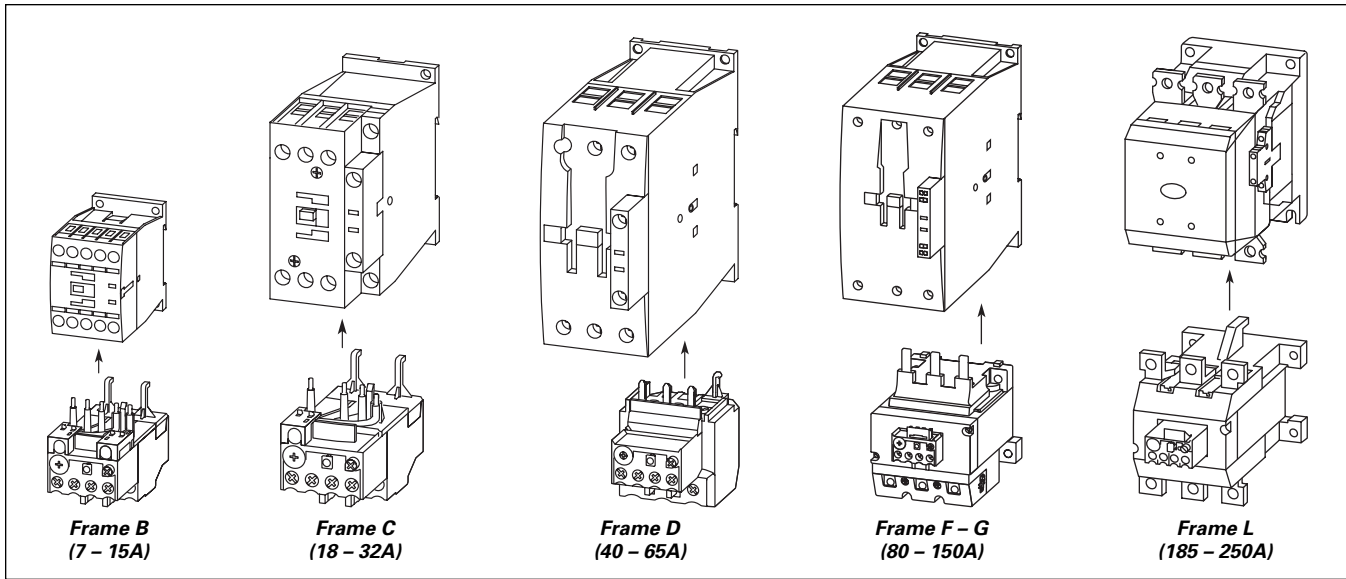


Figure B-74. Overload Fitted Directly to the Contactor

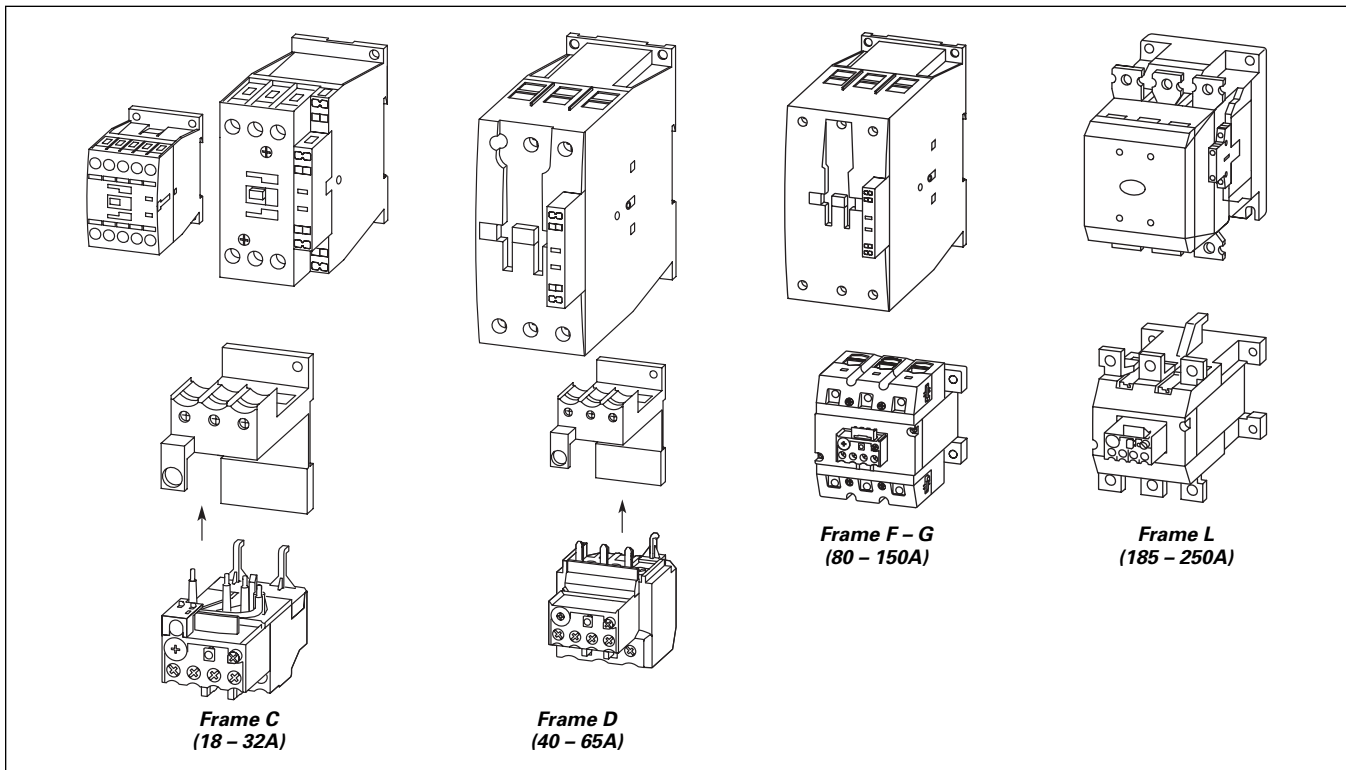


Figure B-75. Overload Mounted Separately from the Contactor

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Overload Relays — XTOB, XTOT

Technical Data and Specifications

Table B-126. XTOB Overload Relay — Technical Data and Specifications

| Description | XTOB...BC1, XTOB...CC1 | XTOB...DC1 | XTOB...GC1, XTOB...GC1S | XTOB...LC1 |
|---|--|---|--|---|
| General | | | | |
| Standards | IEC/EN 60947, VDE 0660, UL, CSA | | | |
| Climate Proofing | Damp heat, constant, to IEC 60068-2-78; Damp heat, cyclic, to IEC 60068-2-30 | | | |
| Ambient Temperature ① | -25°C to +55°C [-13°F to 131°F] | -25°C to +55°C [-13°F to 131°F] | -25°C to +55°C [-13°F to 131°F] | -25°C to +50°C [-13°F to 122°F] |
| Temperature Compensation | Continuous | Continuous | Continuous | Continuous |
| Mechanical Shock Resistance (IEC/EN 60068-2-27) Half-Sinusoidal Shock 10 mS | 10g | 10g | 10g | 10g |
| Degree of Protection | IP20 | IP20 | IP20 | P00 |
| Protection Against Direct Contact when Actuated from Front (IEC 536) | Finger and back of hand proof | Finger and back of hand proof | Finger and back of hand proof | With terminal cover XTOBXTS...L |
| Insulation Voltage (Ui) V AC | 690 | 690 | 690 | 1000 |
| Overvoltage Category / Pollution Degree | III/3 | III/3 | III/3 | III/3 |
| Impulse Withstand Voltage (Uimp) V AC | 6000 | 6000 | 6000 | 8000 |
| Operational Voltage (Ue) V AC | 690 | 690 | 690 | 1000 |
| Safe Isolation to VDE 0106 Part 101 and part 101/A1 Between auxiliary contacts and main contacts (V AC) Between main contacts (V AC) | 440 440 | 440 440 | 440 440 | 440 440 |
| Overload Release Setting Range | 0.1 – 32A | 6 – 75A | 25 – 150A | 50 – 250A |
| Short Circuit Protection Maximum Fuse | See Table B-121 on Page B-94. | | | |
| Temperature Compensation Residual Error > 40°C | <-0.25 | <-0.25 | <-0.25 | <-0.25 |
| Current Heat Loss (3 Conductors) Lower value of setting range, W Upper value of setting range | 2.5 6 | 3 7.5 | 16 28 | 16 28 |
| Terminal Capacity Solid, mm ² Flexible with ferrule, mm ² Flexible with cable lug, mm ² Stranded with cable lug, mm ² | 2 x (1 – 6) 2 x (1 – 4) 2 x (1 – 6) ② — — | 2 x (1 – 16) 1 x 25 2 x (1 – 10) ③ — — | 2 x (4 – 16) 1 x (4 – 70) 2 x (4 – 50) — — | — — — 95 120 |
| Solid or Stranded, AWG | 14 – 8 | 14 – 2 | 2 / 0 | 250MCM |
| Flat Conductor (number of segments x width x thickness, mm ²) | — | — | — | 6 x 16 x 18 |
| Busbar — Width (mm) | — | — | — | 20 x 3 |
| Terminal Screw Tightening Torque Nm Lb-in | M4 1.8 16 | M6 3.5 31 | M10 10 88.5 | M8 x 25 24 221.3 |
| Tools PoziDrive screwdriver Standard screwdriver Hexagon socket head spanner (SW) | Size 2 1 x 6 — | Size 2 1 x 6 — | — — 5 mm | — — 13 mm |
| Auxiliary and Control Circuit Connections | | | | |
| Impulse Withstand Voltage (Uimp) V AC | 6000 | 6000 | 6000 | 6000 |
| Overvoltage Category/Pollution Degree | III/3 | III/3 | III/3 | III/3 |
| Terminal Capacity Solid, mm ² Flexible with ferrule, mm ² Solid or Stranded (AWG) | 2 x (0.75 – 4) 2 x (0.75 – 2.5) 2 x (18 – 12) | 2 x (0.75 – 4) 2 x (0.75 – 2.5) 2 x (18 – 12) | 2 x (0.75 – 4) 2 x (0.75 – 2.5) 2 x (18 – 12) | 2 x (0.75 – 4) 2 x (0.75 – 2.5) 2 x (18 – 12) |
| Terminal Screw Tightening Torque Nm Lb-in | M3.5 0.8 – 1.2 7 – 10.6 | M3.5 0.8 – 1.2 7 – 10.6 | M3.5 0.8 – 1.2 7 – 10.6 | M3.5 0.8 – 1.2 7 – 10.6 |
| Tools PoziDrive screwdriver Standard screwdriver | Size 2 1 x 6 | Size 2 1 x 6 | Size 2 1 x 6 | Size 2 1 x 6 |
| Rated Insulated Voltage (Ui) V AC | 500 | 500 | 500 | 500 |
| Rated Operational Voltage | 500 | 500 | 500 | 500 |
| Safe Isolation to VDE 0106 Part 101 and part 101/A1 Between auxiliary contacts | 240 | 240 | 240 | 240 |
| Conventional Thermal Current, I _{th} | 6 | 6 | 6 | — |

① Ambient Temperature Operating Range to IEC/EN 60947, PTB: -5°C to +50°C.

② 6 mm² flexible with ferrules to DIN 46228.

③ Main contact terminal capacity, solid and stranded conductors with ferrules: When using 2 conductors use identical cross-section.

Overload Relays — XTOB, XTOT

Table B-126. XTOB Overload Relay — Technical Data and Specifications (Continued)

| Description | XTOB...BC1, XTOB...CC1 | XTOB...DC1 | XTOB...GC1, XTOB...GC1S | XTOB...LC1 |
|---|------------------------|------------|-------------------------|------------|
| Auxiliary and Control Circuit Connections (Continued) | | | | |
| Rated Operational Current — AC-15 | | | | |
| Make Contact | | | | |
| 120V | 1.5 | 1.5 | 1.5 | 1.5 |
| 240V | 1.5 | 1.5 | 1.5 | 1.5 |
| 415V | 0.5 | 0.5 | 0.5 | 0.5 |
| 500V | 0.5 | 0.5 | 0.5 | 0.5 |
| Break Contact | | | | |
| 120V | 1.5 | 1.5 | 1.5 | 1.5 |
| 240V | 1.5 | 1.5 | 1.5 | 1.5 |
| 415V | 0.9 | 0.9 | 0.9 | 0.9 |
| 500V | 0.8 | 0.8 | 0.8 | 0.8 |
| Rated Operational Current — DC-13 L/R ≤ 15 mS ① | | | | |
| 24V | 0.9 | 0.9 | 0.9 | 0.9 |
| 60V | 0.75 | 0.75 | 0.75 | 0.75 |
| 110V | 0.4 | 0.4 | 0.4 | 0.4 |
| 220V | 0.2 | 0.2 | 0.2 | 0.2 |
| Short Circuit Rating without Welding Maximum Fuse, A gG/gl | 6 | 6 | 6 | 6 |

① Rated operational current: Making and breaking conditions to DC-13, L/R constant as stated.

Tripping Characteristics

These tripping characteristics are the mean values of the spread at 20°C ambient temperature in a cold state.

Tripping time depends on response current. With devices at operating temperature, the tripping time of the overload relay reduces to approximately 25% of the read off value. Specific characteristics for each individual setting range can be found in MN03402001E.

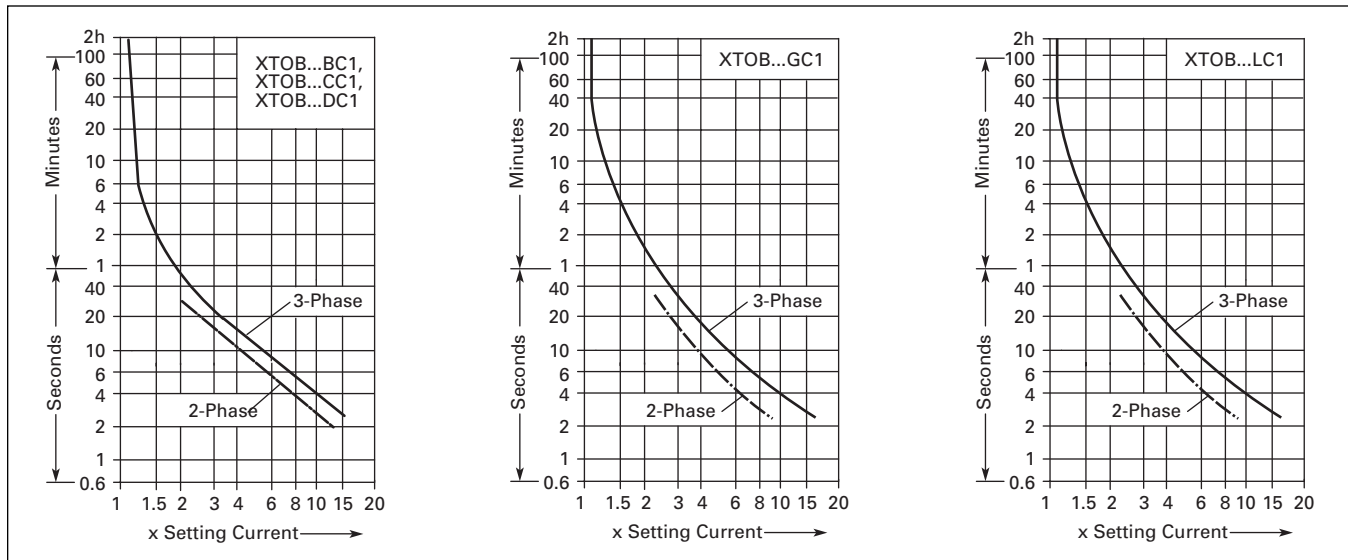


Figure B-76. Tripping Characteristics

Instructional Leaflets

Table B-127. Instructional Leaflets

| Publication Number | Description |
|--------------------|---|
| Pub51221 | XTOB, D Frame Overload Relays (Inside of Packaging) |
| Pub51222 | XTOB, B – C Frame Overload Relays (Inside of Packaging) |

Dimensions

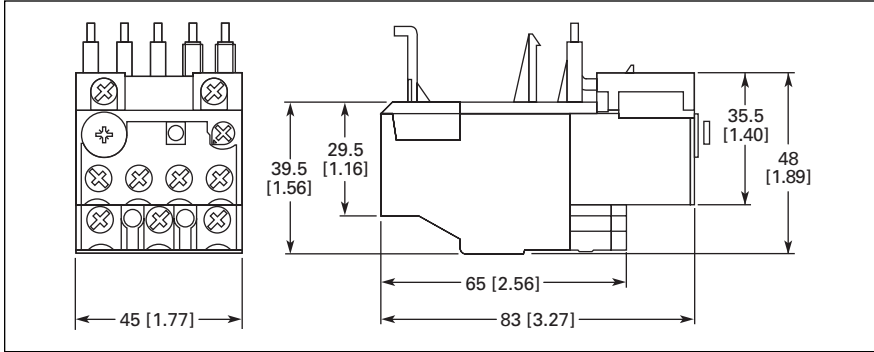


Figure B-77. Frame B – C, XTOB...BC1 and XTOB...CC1 Overload Relays — Approximate Dimensions in mm [in]

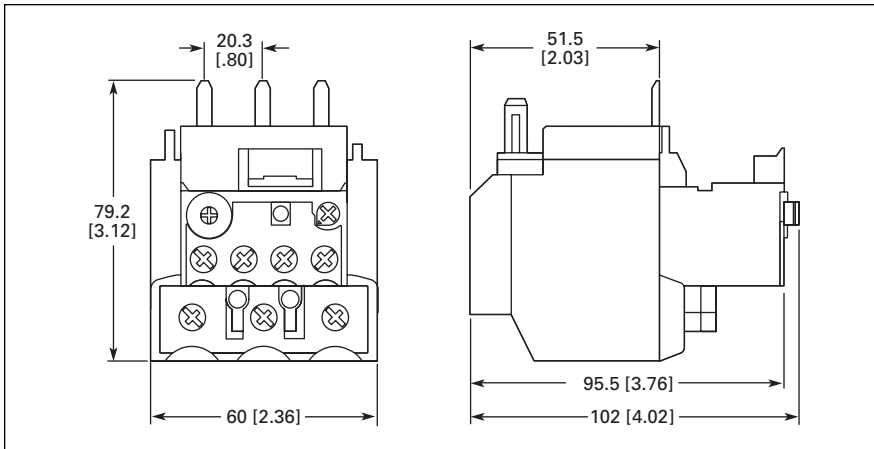


Figure B-78. Frame D, XTOB...DC1 Overload Relay — Approximate Dimensions in mm [in]

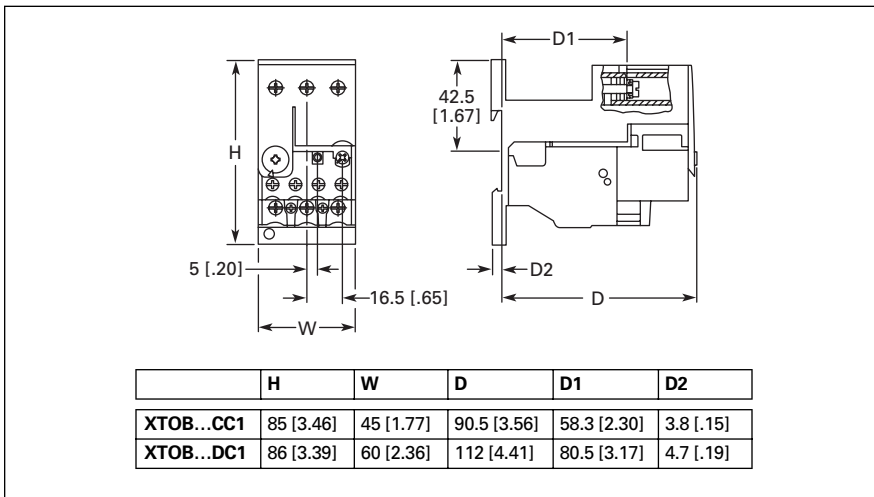


Figure B-79. Frame B – C, XTOBXDINC DIN Rail or Panel Mount Adapter and Frame D, XTOBXDIND DIN Rail or Panel Mount Adapter — Approximate Dimensions in mm [in]

B

Overload Relays — XTOB, XTOT

B

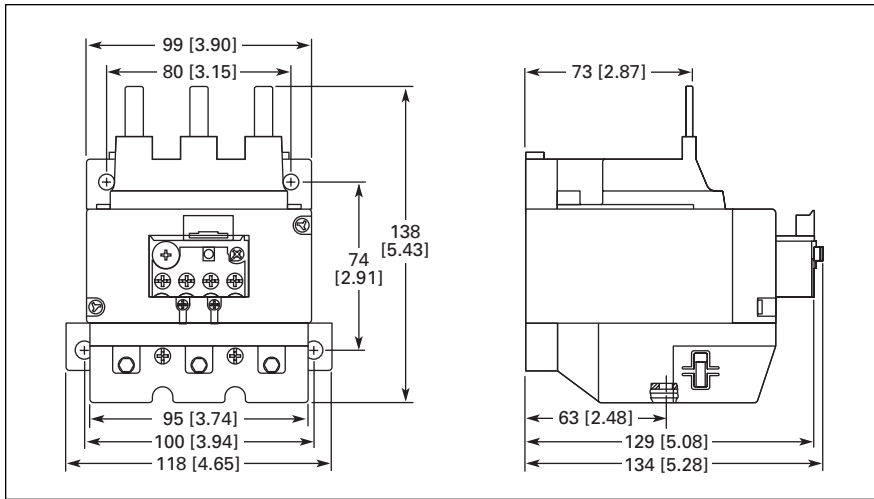


Figure B-80. Frame F - G, XTOB...GC1 Overload Relay — Approximate Dimensions in mm [in]

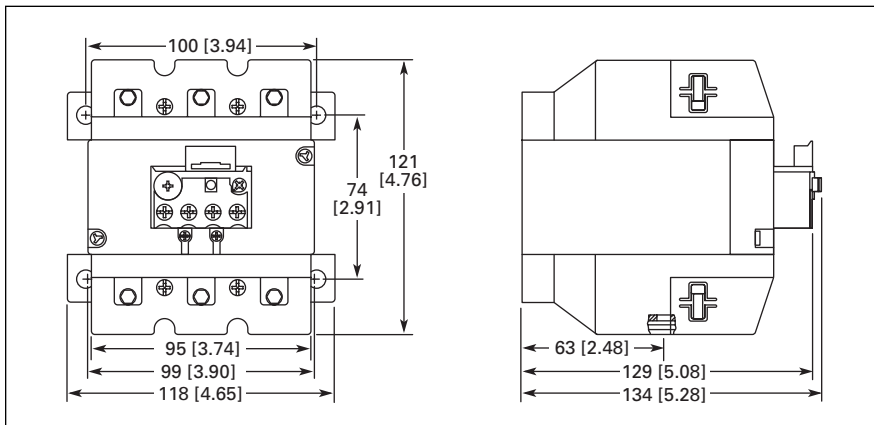
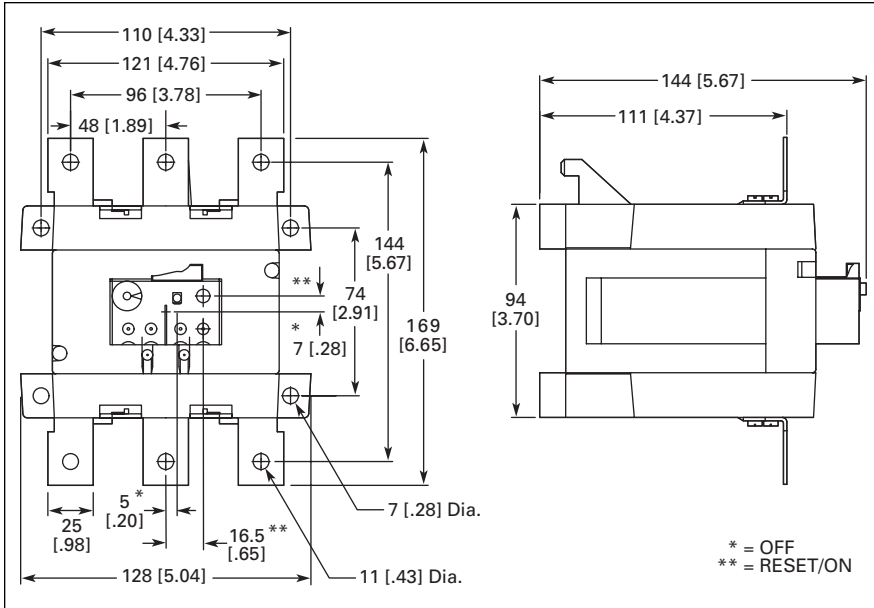


Figure B-81. Frame F - G, XTOB...G1CS Overload Relay — Approximate Dimensions in mm [in]



B

Figure B-82. Frame L, XTOB...LC1 Overload Relay — Approximate Dimensions in mm [in]

Current Transformer Operated Overload Relay

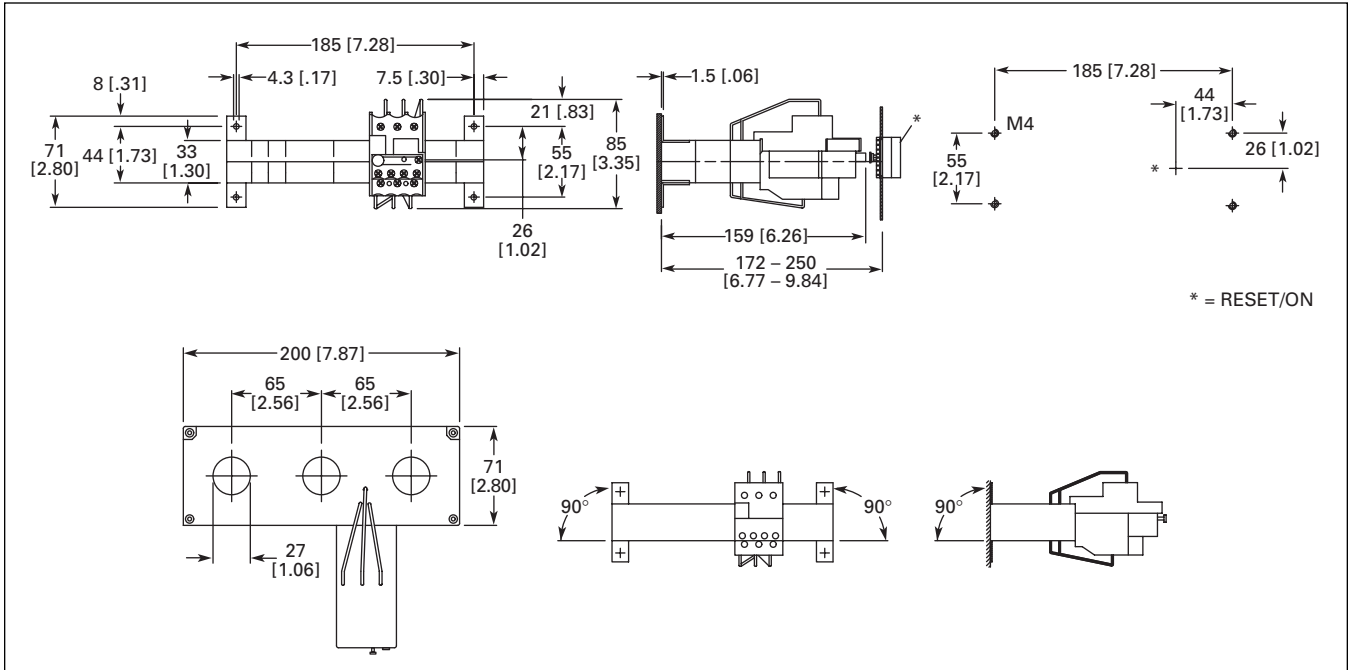


Figure B-83. XTOT...C3S — Approximate Dimensions in mm [in]

Overload Relays — C396

Contents

| | |
|---|--------------|
| Description | Page |
| Overload Relays — C396 | |
| Catalogue Number Selection | B-102 |
| Product Selection | B-103 |
| Accessories | B-103 |
| Technical Data and Specifications | B-104 |
| Dimensions | B-105 |
| Reference Data | B-162 |

B



C396 Electronic Overload Relay

Product Description

The C396 is a self-powered, robust electronic overload designed for integrated use with Freedom NEMA, XT IEC, and DP contactors. The overload can be ordered as a stand-alone version that is designed for Panel-Mounting and for use on 35 mm DIN rail. The C396 has an FLA range of 0.1 – 150 Amps with internal CTs, and up to 1500 Amps using external CTs.

Features

- Three overload models are available:
 - Economy Version: Fixed trip class (10 or 20) with manual reset only (45 mm and 65 mm Frames only)
 - Standard Version: Selectable trip class (5, 10, 20, 30) with Selectable Manual or Auto Reset
 - Advanced Version: Selectable Class (10 or 20), Selectable Manual or Auto Reset, Ground Fault / Jam Detection On or Off
- Broad 5:1 FLA range
- Self-Powered Design, will accept AC voltages from 12 – 690V 50/60 Hz

- Ambient Temperature Compensation
- Low Heat Generation
- Phase Loss Protection
- Phase Unbalance Protection
- Electrically isolated 1NO-1NC Contacts (Pust-to-Test)
- Trip Status Indicator
- FLA range of 0.1 – 1500 Amps

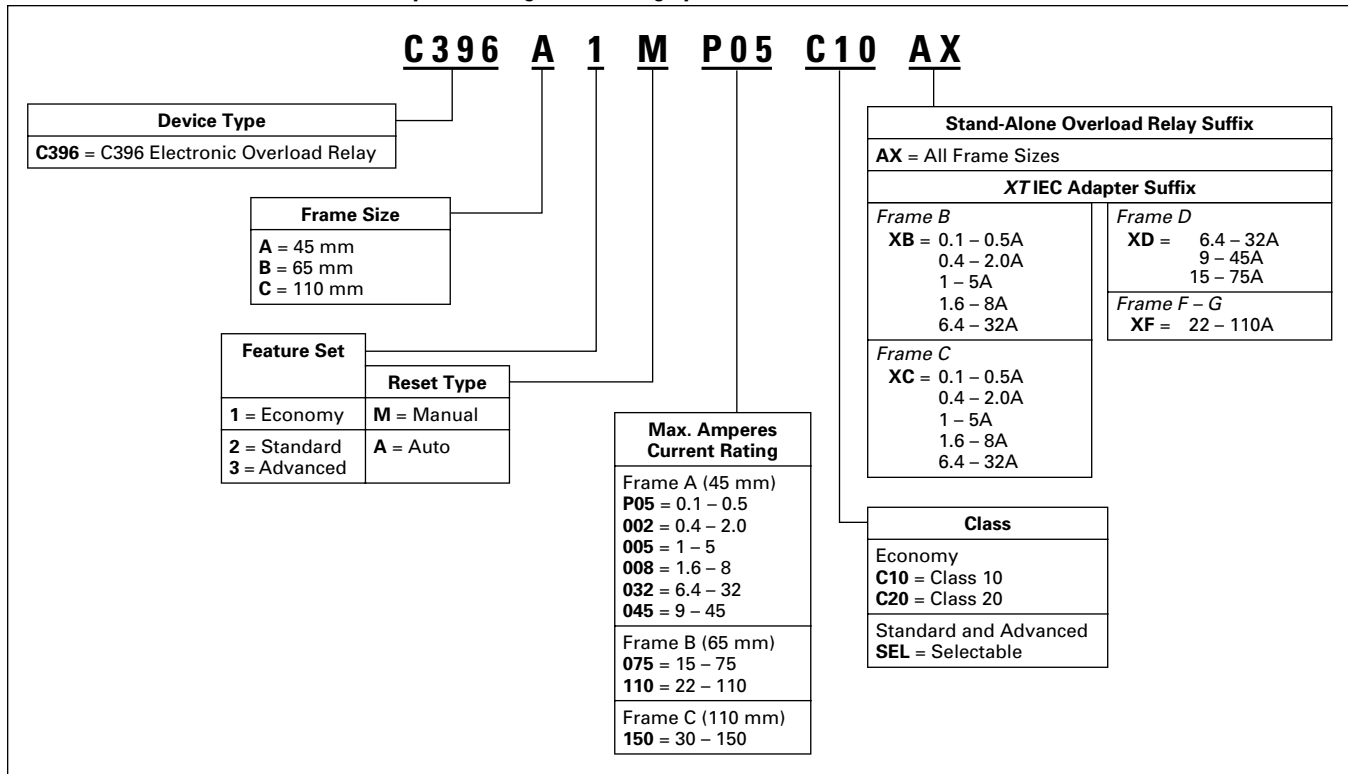
Standards and Certifications

- UL Listed Components: Stand-alone, starter-mounted devices and remote reset kit.
- CSA Certified Components: Stand-alone, starter-mounted devices and remote reset kit.
- IEC EN 60947-4-1, EN 60947-5-1
- CE
- CCC
- RoHS



Catalogue Number Selection

Table B-128. EC396 Electronic Overload Relays — Catalogue Numbering System



① 45 mm overload with external CTs.

Product Selection



Cat. No.
C396B2A110SELFK



Cat. No.
C396C3A150SELAX
with C396CBARXT

B

Table B-129. C396 Stand-Alone Overload Relay by Feature Set ①

| FLA Range (Amps) | Economy Class 10 | | Economy Class 20 | | Standard Class 5/10/20/30 | | Advanced Class 10/20 ② | |
|---|------------------|--|------------------|-------|---------------------------|-------|------------------------|-------|
| | Catalogue Number | Price | Catalogue Number | Price | Catalogue Number | Price | Catalogue Number | Price |
| 45 mm Overload Frame Size | | | | | | | | |
| 0.1 – 0.5 | C396A1MP05C10AX | | C396A1MP05C20AX | | C396A2AP05SELAX | | C396A3AP05SELAX | |
| 0.4 – 2.0 | C396A1M002C10AX | | C396A1M002C20AX | | C396A2A002SELAX | | C396A3A002SELAX | |
| 1 – 5 | C396A1M005C10AX | | C396A1M005C20AX | | C396A2A005SELAX | | C396A3A005SELAX | |
| 1.6 – 8 | C396A1M008C10AX | | C396A1M008C20AX | | C396A2A008SELAX | | C396A3A008SELAX | |
| 6.4 – 32 | C396A1M032C10AX | | C396A1M032C20AX | | C396A2A032SELAX | | C396A3A032SELAX | |
| 9 – 45 | C396A1M045C10AX | | C396A1M045C20AX | | C396A2A045SELAX | | C396A3A045SELAX | |
| 65 mm Overload Frame Size | | | | | | | | |
| 15 – 75 | C396B1M075C10AX | | C396B1M075C20AX | | C396B2A075SELAX | | C396B3A075SELAX | |
| 22 – 110 | C396B1M110C10AX | | C396B1M110C20AX | | C396B2A110SELAX | | C396B3A110SELAX | |
| 110 mm Overload Frame Size | | | | | | | | |
| 30 – 150 | — | | — | | C396C2A150SELAX | | C396C3A150SELAX | |
| 45 mm Overload with External Current Transformer | | | | | | | | |
| Overload Relay | | | | | | | | |
| 1 – 5 | C396A1M005C10AX | | C396A1M005C20AX | | C396A2A005SELAX | | C396A3A005SELAX | |
| Current Transformer Kits | | | | | | | | |
| 60 – 300 | C396CTK300 | 300: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT, Bus Bars, Lugs and Hardware to mount C396) | | | | | | |
| 120 – 600 | C396CTK600 | 600: 5 CT Kit for use with 45 mm 1 – 5A C396 Overload (includes CT, Bus Bars, Lugs and Hardware to mount C396) | | | | | | |
| 200 – 1000 | C396CTK1000 | 1000: 5 CT Kit for use with 45 m 1 – 5A C396 Overload (includes CT and Hardware to mount C396) | | | | | | |
| 300 – 1500 | C396CTK1500 | 1500: 5 CT Kit for use with 45 m 1 – 5A C396 Overload (includes CT and Hardware to mount C396) | | | | | | |

Table B-130. C396 Overload for Integrated Use with XTIEC Contactors by Feature Set ①

| FLA Range (Amps) | XTIEC Contactor Frame Size / Width | Economy Class 10 | | Economy Class 20 | | Standard Class 5/10/20/30 | | Advanced Class 10/20 ② | |
|--|------------------------------------|------------------|-------|------------------|-------|---------------------------|-------|------------------------|-------|
| | | Catalogue Number | Price | Catalogue Number | Price | Catalogue Number | Price | Catalogue Number | Price |
| 45 mm Overload Frame Size | | | | | | | | | |
| 0.1 – 0.5 | B / 45 mm | C396A1MP05C10XB | | C396A1MP05C20XB | | C396A2AP05SELXB | | C396A3AP05SELXB | |
| 0.4 – 2.0 | B / 45 mm | C396A1M002C10XB | | C396A1M002C20XB | | C396A2A002SELXB | | C396A3A002SELXB | |
| 1 – 5 | B / 45 mm | C396A1M005C10XB | | C396A1M005C20XB | | C396A2A005SELXB | | C396A3A005SELXB | |
| 1.6 – 8 | B / 45 mm | C396A1M008C10XB | | C396A1M008C20XB | | C396A2A008SELXB | | C396A3A008SELXB | |
| 6.4 – 32 | B / 45 mm | C396A1M032C10XB | | C396A1M032C20XB | | C396A2A032SELXB | | C396A3A032SELXB | |
| 0.1 – 0.5 | C / 45 mm | C396A1MP05C10XC | | C396A1MP05C20XC | | C396A2AP05SELXC | | C396A3AP05SELXC | |
| 0.4 – 2.0 | C / 45 mm | C396A1M002C10XC | | C396A1M002C20XC | | C396A2A002SELXC | | C396A3A002SELXC | |
| 1 – 5 | C / 45 mm | C396A1M005C10XC | | C396A1M005C20XC | | C396A2A005SELXC | | C396A3A005SELXC | |
| 1.6 – 8 | C / 45 mm | C396A1M008C10XC | | C396A1M008C20XC | | C396A2A008SELXC | | C396A3A008SELXC | |
| 6.4 – 32 | C / 45 mm | C396A1M032C10XC | | C396A1M032C20XC | | C396A2A032SELXC | | C396A3A032SELXC | |
| 1.6 – 8 | D / 55 mm | C396A1M008C10XD | | C396A1M008C20XD | | C396A2A008SELXD | | C396A3A008SELXD | |
| 6.4 – 32 | D / 55 mm | C396A1M032C10XD | | C396A1M032C20XD | | C396A2A032SELXD | | C396A3A032SELXD | |
| 9 – 45 | D / 55 mm | C396A1M045C10XD | | C396A1M045C20XD | | C396A2A045SELXD | | C396A3A045SELXD | |
| 65 mm Overload Frame Size | | | | | | | | | |
| 15 – 75 | D / 55 mm | C396B1M075C10XD | | C396B1M075C20XD | | C396B2A075SELXD | | C396B3A075SELXD | |
| 22 – 110 | F – G / 90 mm | C396B1M110C10XF | | C396B1M110C20XF | | C396B2A110SELXF | | C396B3A110SELXF | |
| 110 mm Overload Frame Size — Stand-Alone or Direct to XT Contactor with Indicated Kit | | | | | | | | | |
| 30 – 150 | G / 90 mm | — | | — | | C396C2A150SELAX ③ | | C396C3A150SELAX ③ | |
| 110 mm XT Bus Bar Kit ④ | — | — | | — | | C396CBARXT | | C396CBARXT | |

Accessories

Table B-131. C396 Electronic Overload Accessories

| Description | Catalogue Number | Price |
|-------------------------|------------------|-------|
| Reset Bar Kit ① | C396ARST | |
| 110 mm Lug Kit ① | C396CLUG | |
| 110 mm Bus Bar Kit ① | C396CBAR | |
| 110 mm XT Bus Bar Kit ① | C396CBARXT | |
| Remote Reset 24V DC ④ | C396RR024DC | |
| Remote Reset 24V AC ④ | C396RR024AC | |
| Remote Reset 120V DC ④ | C396RR120DC | |
| Remote Reset 120V AC ④ | C396RR120AC | |

- ① Product available first quarter of 2007.
- ② Contact local sales office for availability.
- ③ Catalogue Number shown is for Stand-Alone C396 Overload Relay. For direct connection to Frame G contactor, order additional 110 mm XT Bus Bar Kit, C396CBARXT, shown in Tables B-130 and B-131.
- ④ Product available first quarter of 2007.

Technical Data Page B-104
Dimensions Pages B-105, B-106
Discount Symbol MC7

Overload Relays — C396

Technical Data and Specifications

Table B-132. Overload Relay Specifications

| General Description | C396_1_ | C396_2_ | C396_3_ |
|---------------------|---------|----------|----------|
| | Economy | Standard | Advanced |

Protection

| | | | |
|-----------------|--|---|--|
| Thermal | 1.05 x FLA: Does not trip 1.15 x FLA: Overload trip | | |
| Phase Loss | 1 Phase = 0, Trip time = 3s (Hot Status) | | |
| Phase Imbalance | Max - Min / Max > 40%, Trip time = 3s (Hot Status) | | |
| Inrush Current | > 8 x Max FLA, Trip time is 0.3s (Cold Status) | | |
| Jam | — | — | If trip level equals 400% FLA, Trip Time = 0.5s. Trip function activated 30s after start-up. |
| Ground Fault | — | — | If trip level 50% FLA, Trip Time = 1s. Trip function activated 30s after start-up. |

Trip Class

| | | | |
|---------------------|-------|------------|------------|
| Class 10 or 20 | Fixed | — | — |
| Class 10 or 20 | — | — | Selectable |
| Class 5, 10, 20, 30 | — | Selectable | — |

Reset

| | | | |
|--------------------|------------------------|--|---|
| M / M-O | Manual / Manual + Stop | — | — |
| M / M-O A / A-O | — | Auto Reset Time = 165s Manual / Manual = Stop Auto / Auto + Stop | |

Indications

| | | | |
|---------------------|-----------|--------------------|--|
| Power LED Indicator | LED Green | Optional LED Green | |
| Test Indicator | Yellow | | |
| Trip Indicator | Yellow | | |

PCBA

| | |
|---------------------------|------------------------------------|
| Power Sensing | 3 phase |
| Instant Reset by Power ON | CPU reset by Power ON after 2 – 3s |
| Thermal memory | < 3 min. |
| Cold and Hot Trip Curves | Power ON > 20 min. is Hot Status |
| Power Consumption | < 300 mW |

Options

| | |
|--------------|--------------------------------------|
| Safety Cover | Covers FLA dial, DIP switches |
| Remote Reset | Accepts 12 – 24V DC or 120 – 240V AC |

Table B-132. Overload Relay Specifications (Continued)

| General Description | C396_1_ | C396_2_ | C396_3_ |
|---------------------|---------|----------|----------|
| | Economy | Standard | Advanced |

Climate Considerations

| | | | |
|--|---|--|--|
| Ambient Temperature (Operating) | -25° to 65°C (-13° to 149°F) inside enclosure | | |
| Ambient Temperature (Storage / Transportation) | -40° to 80°C (-40° to 176°F) | | |
| Humidity | UL991 (H3): 20 – 95% non-condensing | | |
| Altitude (Operating) | NEMA ICS1: 2000 meters max above sea level | | |
| Pollution (Operating — External) | Pollution degree 3 | | |
| Mechanical Shock Resistance (IEC/EN 68-2-17) | 15g | | |
| Vibration (Lloyd's Register of Shipping, Vibration Test 2) | 6g | | |
| Temperature Compensation | Continuous | | |

Voltages

| | |
|---|------------------------|
| Control Voltage | 12 – 690V AC, 50/60 Hz |
| Insulation Voltage (Ui) — Main Circuit | 1000V AC |
| Insulation Voltage (Ui) — Control Circuit | 690V AC |
| Impulse Withstand Voltage (Uimp) VAC | 6000 |

FLA Range

| | |
|----------------------|-----------|
| 45 mm Frame: C396A_ | 0.1 – 45A |
| 65 mm Frame: C396B_ | 22 – 110A |
| 110 mm Frame: C396C_ | 30 – 150A |

Safety

| | |
|----------------------|------|
| Degree of Protection | IP20 |
|----------------------|------|

Capacity

| | |
|--|-------------|
| Control Terminal Capacity | 22 – 14 AWG |
| Control Terminal Tightening Torque in Nm (lb-in) | 0.79 (7) |

Line Terminal Capacity

| | |
|----------------------|-----------------|
| 45 mm Frame: C396A_ | 14 – 6 AWG |
| 65 mm Frame: C396B_ | 10 – 1 AWG |
| 110 mm Frame: C396C_ | 6 AWG – 250 mcm |

Line Terminal Tightening Torque in Nm (lb-in)

| | |
|----------------------|-------------|
| 45 mm Frame: C396A_ | 2.82 (25) |
| 65 mm Frame: C396B_ | 14.12 (125) |
| 110 mm Frame: C396C_ | 28.25 (250) |

Dimensions

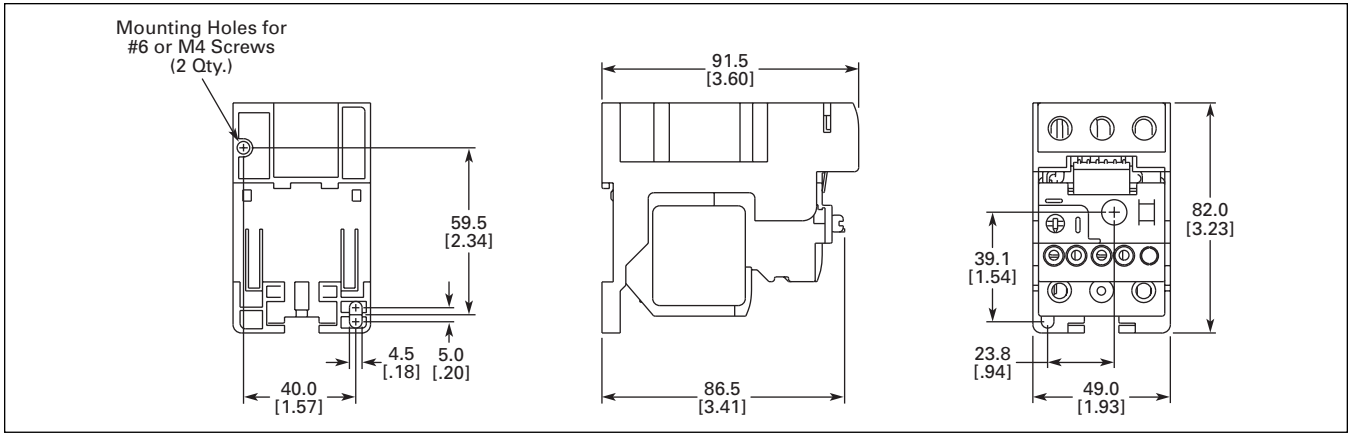


Figure B-84. 45 mm Stand-Alone C396 Electronic Overload Relay — Approximate Dimensions in mm [in]

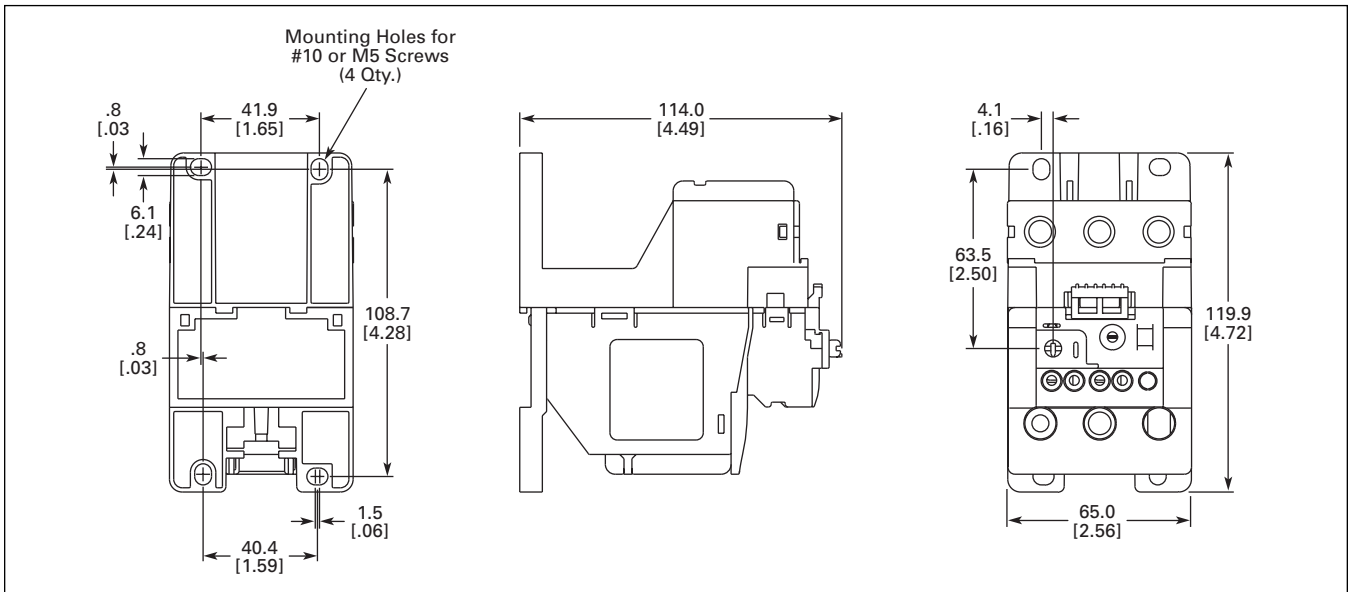


Figure B-85. 65 mm Stand-Alone C396 Electronic Overload Relay — Approximate Dimensions in mm [in]

B

Overload Relays — C396

B

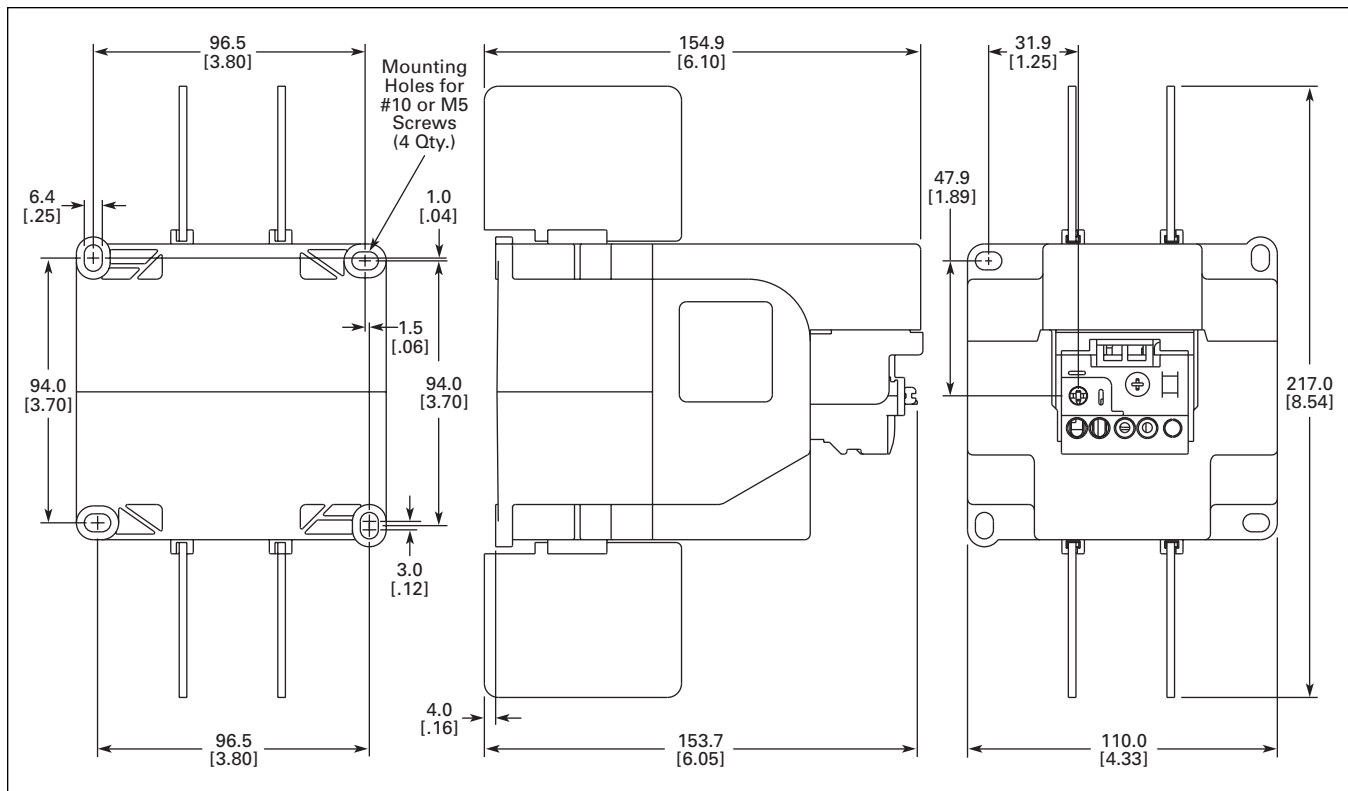


Figure B-86. 110 mm Stand-Alone C396 Electronic Overload Relay — Approximate Dimensions in mm [in]

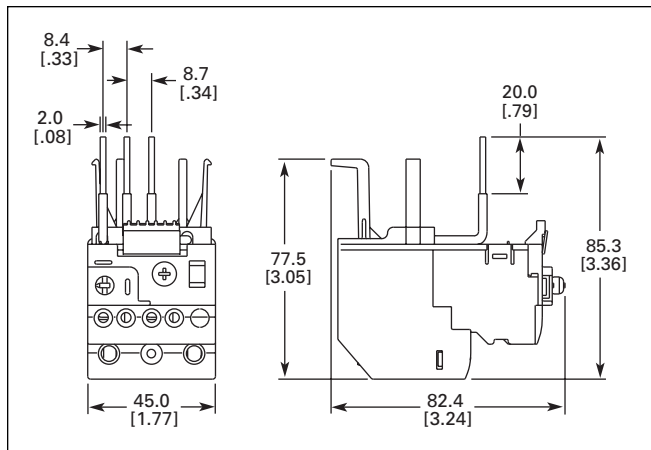


Figure B-87. 45 mm C396 (0.1 - 8A) Direct Connect to XT Frame B Contactor — Approximate Dimensions in mm [in]

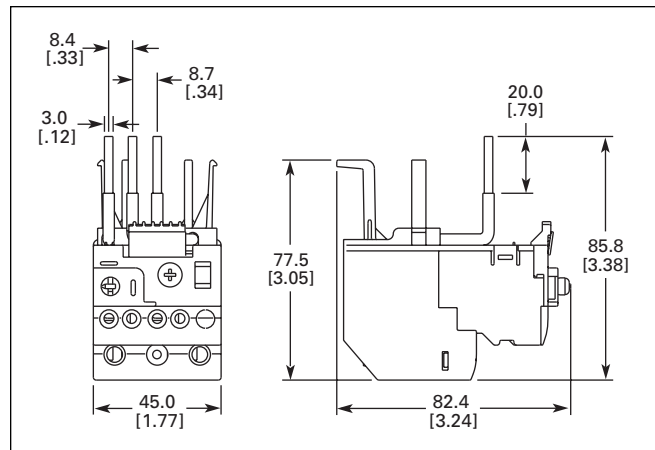


Figure B-88. 45 mm C396 (6.4 - 32A) Direct Connect to XT Frame B Contactor — Approximate Dimensions in mm [in]

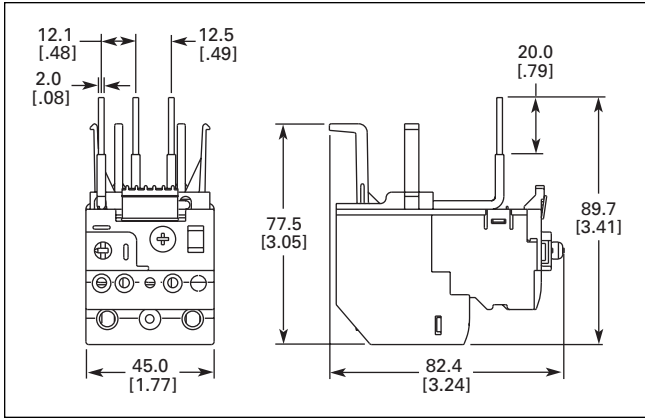


Figure B-89. 45 mm C396 (0.1 – 8A) Direct Connect to XT Frame C Contactor — Approximate Dimensions in mm [in]

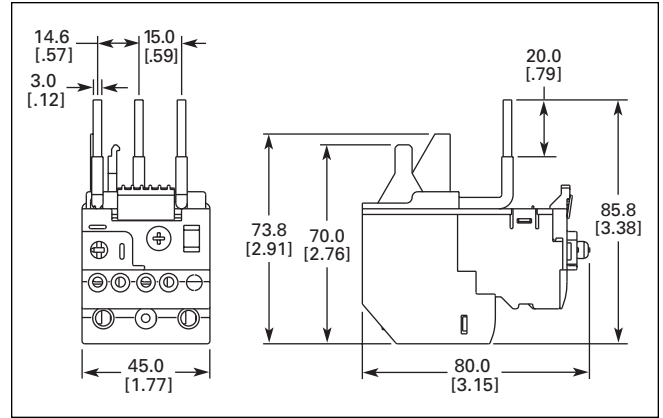


Figure B-91. 45 mm C396 (6.4 – 45A) Direct Connect to XT Frame D Contactor — Approximate Dimensions in mm [in]

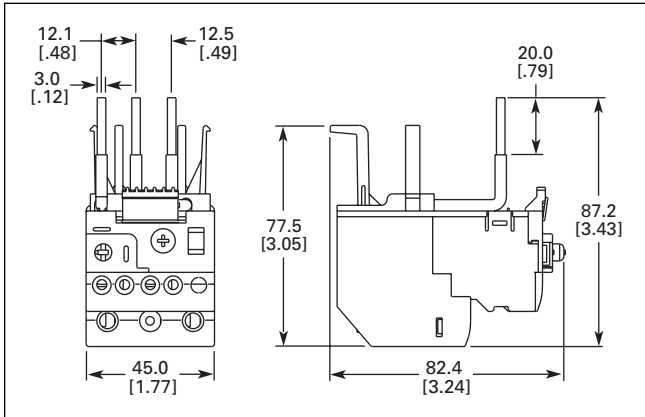


Figure B-90. 45 mm C396 (6.4 – 32A) Direct Connect to XT Frame C Contactor — Approximate Dimensions in mm [in]

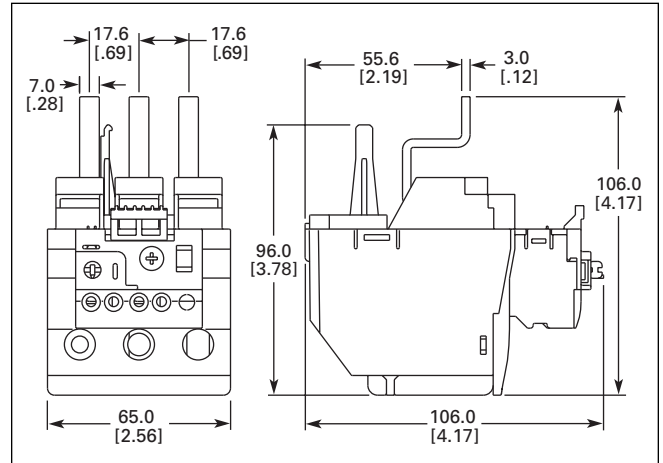


Figure B-92. 65 mm C396 (15 – 75A) Direct Connect to XT Frame D Contactor — Approximate Dimensions in mm [in]

B

Overload Relays — C396

B

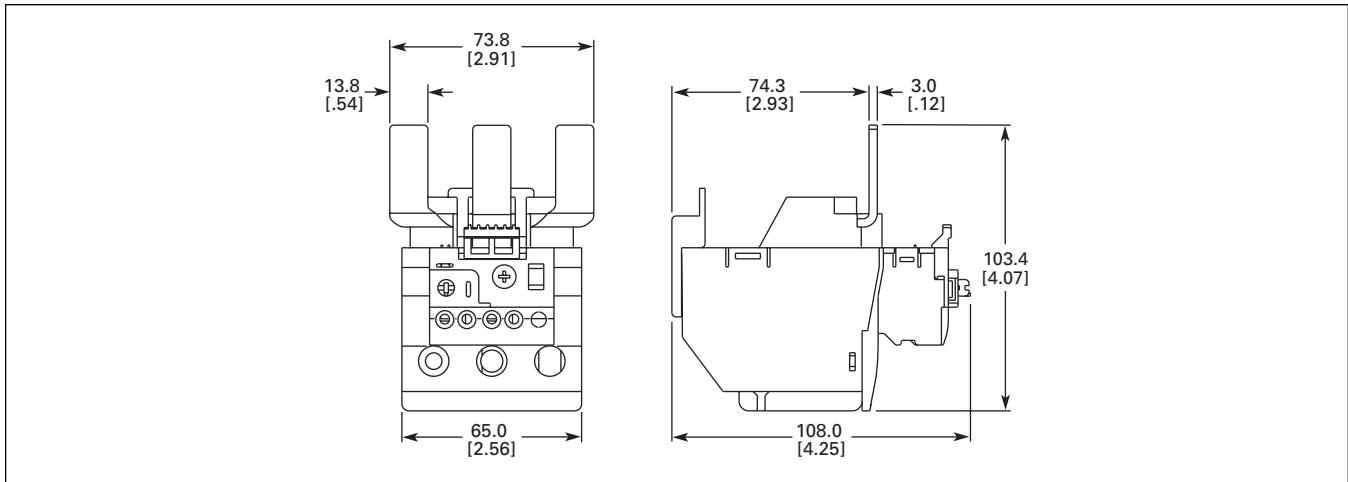


Figure B-93. 65 mm C396 (22 – 110A) Direct Connect to XT Frame F – G Contactor — Approximate Dimensions in mm [in]

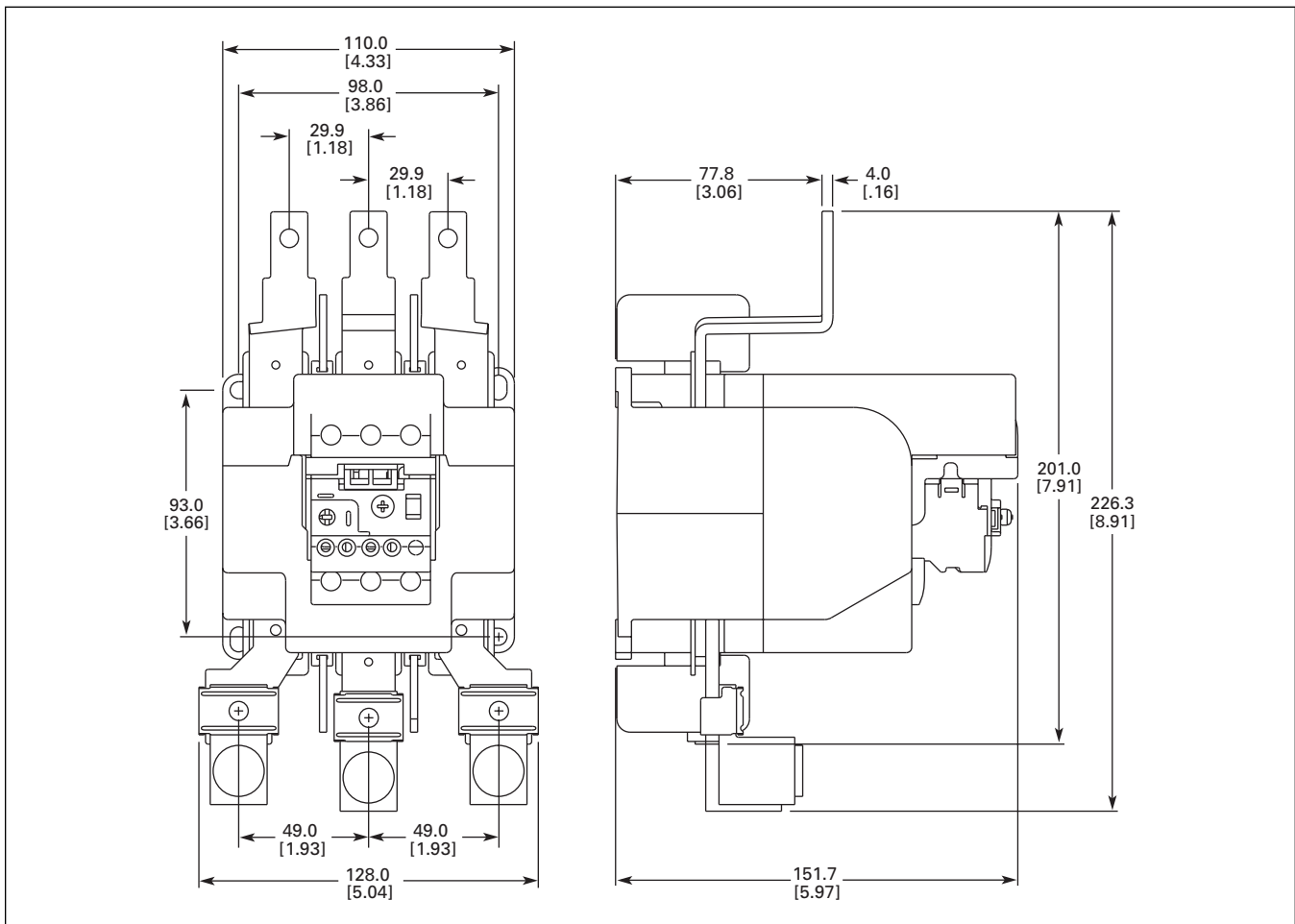


Figure B-94. 110 mm C396 (30 – 150A) + C396CBARXT Direct Connect to XT Frame G Contactor — Approximate Dimensions in mm [in]