



| Product designation Product type designation                    |                    |     | Power contactor<br>BF09 |
|---|--------------------|-----|-------------------------|
| Contact characteristics   |                    |     | DI 00                   |
| Number of poles   |                    | Nr. | 3                       |
| Rated insulation voltage Ui IEC/EN                              |                    | V   | 690                     |
| Rated impulse withstand voltage Uimp                            |                    | kV  | 6                       |
| Operational frequency   |                    |     |                         |
| • • •   | min                | Hz  | 25                      |
|   | max                | Hz  | 400                     |
| IEC Conventional free air thermal current Ith                   |                    | Α   | 25                      |
| Operational current le  |                    |     |                         |
|   | AC-1 (≤40°C)       | Α   | 25                      |
|   | AC-1 (≤55°C)       | Α   | 20                      |
|   | AC-1 (≤70°C)       | Α   | 18                      |
|   | AC-3 (≤440V ≤55°C) | Α   | 9                       |
|   | AC-4 (400V)        | Α   | 4.9                     |
| Rated operational power AC-3 (T≤55°C)                           |                    |     |                         |
|   | 230V               | kW  | 2.2                     |
|   | 400V               | kW  | 4.2                     |
|   | 415V               | kW  | 4.5                     |
|   | 440V               | kW  | 4.8                     |
|   | 500V               | kW  | 5.5                     |
|   | 690V               | kW  | 7.5                     |
| Rated operational power AC-1 (T≤40°C)                           |                    |     |                         |
|   | 230V               | kW  | 9.5                     |
|   | 400V               | kW  | 16                      |
|   | 500V               | kW  | 21                      |
|   | 690V               | kW  | 27                      |
| IEC max current le in DC1 with L/R ≤ 1ms with 1 poles in series |                    |     |                         |
|   | ≤24V               | Α   | 15                      |
|   | 48V                | Α   | 13                      |
|   | 75V                | Α   | 12                      |
|   | 110V               | Α   | 6                       |
|   | 220V               | Α   | _                       |
| IEC max current le in DC1 with L/R ≤ 1ms with 2 poles in series |                    |     |                         |
|   | ≤24V               | Α   | 18                      |
|   | 48V                | Α   | 18                      |
|   | 75V                | Α   | 17                      |
|   | 110V               | Α   | 12                      |
|   | 220V               | Α   | 1                       |
| IEC max current le in DC1 with L/R ≤ 1ms with 3 poles in series |                    |     |                         |
|   | ≤24V               | Α   | 20                      |
|   | 48V                | Α   | 20                      |
|   | 75V                | Α   | 20                      |
|   | 110V               | Α   | 15                      |
|   |                    |     |                         |





|  | 220V     | Α            | 10  |
|--|----------|--------------|-----|
| IEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series        |          |              |     |
|  | ≤24V     | Α            | 20  |
|  | 48V      | Α            | 20  |
|  | 75V      | Α            | 20  |
|  | 110V     | Α            | 16  |
|  | 220V     | Α            | 12  |
| IEC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series   |          |              |     |
|  | ≤24V     | Α            | 10  |
|  | 48V      | Α            | 9   |
|  | 75V      | Α            | 8   |
|  | 110V     | Α            | 2   |
|  | 220V     | Α            | _   |
| IEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series   |          |              |     |
| The max surrounds in Boo Boo man give Tome man 2 person in somes       | ≤24V     | Α            | 13  |
|  | 48V      | Α            | 11  |
|  | 75V      | A            | 10  |
|  | 110V     | A            | 7   |
|  | 220V     | A            | 2   |
| IEC many assert to in DC2 DC5 with L/D < 45 man with 2 males in agrica | 220 V    | A            |     |
| IEC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series   | 20AV     | ۸            | 4 E |
|  | ≤24V     | A            | 15  |
|  | 48V      | A            | 15  |
|  | 75V      | Α            | 13  |
|  | 110V     | Α            | 11  |
|  | 220V     | Α            | 6   |
| IEC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series   |          |              |     |
|  | ≤24V     | Α            | 15  |
|  | 48V      | Α            | 15  |
|  | 75V      | Α            | 15  |
|  | 110V     | Α            | 12  |
|  | 220V     | Α            | 7   |
| Short-time allowable current for 10s (IEC/EN60947-1)                   |          | Α            | 150 |
| Protection fuse  |          |              |     |
|  | gG (IEC) | Α            | 25  |
|  | aM (IEC) | Α            | 10  |
| Making capacity (RMS value)  |          | Α            | 90  |
| Breaking capacity at voltage   |          |              |     |
|  | 440V     | Α            | 72  |
|  | 500V     | A            | 72  |
|  | 690V     | Α            | 71  |
| Resistance per pole (average value)                                    | 3001     | mΩ           | 2.5 |
| Power dissipation per pole (average value)                             |          | 11122        | 2.0 |
| i ower dissipation per pole (average value)                            | Ith      | W            | 1.6 |
|  |          | W            |     |
| Tightoning torque for torminals  | AC3      | ٧٧           | 0.2 |
| Tightening torque for terminals  |          | <b>N</b> 1 . | 4.5 |
|  | min      | Nm           | 1.5 |
|  | max      | Nm           | 1.8 |
|  | min      | lbin         | 1.1 |
|  | max      | lbin         | 1.5 |
| Tightening torque for coil terminal                                    |          |              |     |
|  | min      | Nm           | 0.8 |
|  | max      | Nm           | 1   |
|  | min      | Ibin         | 0.8 |
|  |          |              |     |



|  |  | max   | Ibin                                      | 0.74   |
|--|--|---|---|--|
|  | simultaneously connectable   |   | Nr.                                       | 2  |
| Conductor section  | 1110/14  |   |   |  |
|  | AWG/Kcmil  |   |   | 4.0  |
|  | Clavible w/o live an diretor postion   | max   |   | 10   |
|  | Flexible w/o lug conductor section   | min   | mama <sup>2</sup>                         | 1  |
|  |  | min   | mm²<br>mm²                                | 1<br>6   |
|  | Flexible c/w lug conductor section   | max   | 111111                                    | 0  |
|  | r lexible 6/w lug corluction section   | min   | mm²                                       | 1  |
|  |  | max   | mm²                                       | 4  |
|  | Flexible with insulated spade lug conductor section  |   |   | •  |
|  | r loxible mar inediated opade lag confederer cooler  | min   | mm²                                       | 1  |
|  |  | max   | mm²                                       | 4  |
| D (  | ('   |   |   | IP20 when  |
| Power terminal protect   | tion according to IEC/EN 60529   |   |   | properly wired   |
| Mechanical features  |  |   |   |  |
| Operating position   |  |   |   |  |
|  |  | normal  |   | Vertical plan  |
|  |  | allowable   |   | ±30°   |
| Fixing   |  |   |   | Screw / DIN rail   |
|  |  |   |   | 35mm   |
| Weight   |  |   | g   | 358  |
| Conductor section  |  |   |   |  |
|  | AWG/kcmil conductor section  |   |   |  |
| A 10   | and the second s | max   |   | 10   |
| Auxiliary contact chara<br>Thermal current Ith   | acteristics  |   | Α   | 10   |
|  |  |   |   |  |
|  | aignation  |   | <u> </u>                                  | 10<br>A600 B600  |
| IEC/EN 60947-5-1 de  | •  |   | A   | A600 - P600  |
| IEC/EN 60947-5-1 de  | •  | 2201/   |   | A600 - P600  |
| IEC/EN 60947-5-1 de  | •  | 230V  | A   | A600 - P600<br>3   |
| IEC/EN 60947-5-1 de  | •  | 400V  | A<br>A                                    | A600 - P600<br>3<br>1.9  |
| IEC/EN 60947-5-1 de<br>Operating current AC  | 15   |   | A   | A600 - P600<br>3   |
| IEC/EN 60947-5-1 de<br>Operating current AC  | 15   | 400V<br>500V  | A<br>A<br>A                               | 3<br>1.9<br>1.4  |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V  | A<br>A                                    | A600 - P600<br>3<br>1.9  |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V<br>500V<br>110V  | A<br>A<br>A                               | 3<br>1.9<br>1.4<br>5.7   |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V<br>500V<br>110V<br>24V   | A<br>A<br>A                               | 3<br>1.9<br>1.4<br>5.7   |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V<br>500V<br>110V  | A<br>A<br>A                               | 3<br>1.9<br>1.4<br>5.7   |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V<br>500V<br>110V<br>24V<br>48V  | A<br>A<br>A<br>A                          | 3<br>1.9<br>1.4<br>5.7<br>5.7  |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V                                 | A<br>A<br>A<br>A<br>A                     | 3<br>1.9<br>1.4<br>5.7<br>5.7<br>2.9<br>2.3  |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V                         | A<br>A<br>A<br>A<br>A                     | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25  |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC   | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V                 | A<br>A<br>A<br>A<br>A<br>A                | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1  |
| IEC/EN 60947-5-1 de Operating current AC  Operating current DC  Operating current DC  Operating current DC   | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V         | A<br>A<br>A<br>A<br>A<br>A<br>A           | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2                                 |
| Operating current DC  Mechanical life  | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V         | A A A A A A A A                           | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2                                 |
| Operating current DC  Electrical life  | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V         | A<br>A<br>A<br>A<br>A<br>A<br>A           | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2                                 |
| Operating current DC Operating current DC Operating current DC Operating current DC Operations Mechanical life Electrical life Safety related data   | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V         | A<br>A<br>A<br>A<br>A<br>A<br>A<br>Cycles | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2                                 |
| Operating current DC Operating current DC Operating current DC Operating current DC Operations Mechanical life Electrical life Safety related data   | 12   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V<br>600V | A A A A A A A A Cycles cycles             | 3<br>1.9<br>1.4<br>5.7<br>5.7<br>2.9<br>2.3<br>1.25<br>1.1<br>0.55<br>0.2<br>20000000      |
| Operating current DC Operating current DC Operating current DC Operating current DC Operations Mechanical life Electrical life Safety related data   | 12 13 Od according to EN/ISO 13489-1   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V<br>600V | A A A A A A A A Cycles cycles             | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2  20000000 20000000              |
| Operating current DC Operating current DC Operating current DC Operating current DC Operations Mechanical life Electrical life Safety related data Performance level B1                        | 12 13 Od according to EN/ISO 13489-1   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V<br>600V | A A A A A A A A Cycles cycles             | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2  20000000 20000000 20000000     |
| Operating current DC Operating current DC Operating current DC Operating current DC Operations Mechanical life Electrical life Safety related data Performance level B1 Mirror contats accordi | 12 13 Od according to EN/ISO 13489-1   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V<br>600V | A A A A A A A A Cycles cycles             | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2  20000000 20000000 20000000 yes |
| Operating current DC Operating current DC Operating current DC Operating current DC Operations Mechanical life Electrical life Safety related data Performance level B1                        | 12 13 Od according to EN/ISO 13489-1   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V<br>125V<br>220V<br>600V | A A A A A A A A Cycles cycles             | A600 - P600  3 1.9 1.4  5.7  5.7 2.9 2.3 1.25 1.1 0.55 0.2  20000000 20000000 20000000     |



| Rated AC voltage at 5  | 50/60Hz   |  | V                                    | 230  |
|--|---|--|--------------------------------------|--|
| AC operating voltage   |   |  |                                      |  |
| , ,  | of 50/60Hz coil powered at 50Hz   |  |                                      |  |
|  | pick-up   |  |                                      |  |
|  |   | min  | %Us                                  | 80   |
|  |   | max  | %Us                                  | 110  |
|  | drop-out  |  |                                      |  |
|  |   | min  | %Us                                  | 20   |
|  | (50/001)  | max  | %Us                                  | 55   |
|  | of 50/60Hz coil powered at 60Hz   |  |                                      |  |
|  | pick-up   |  | 0/11-                                | 0.5  |
|  |   | min  | %Us                                  | 85   |
|  | drop out  | max  | %Us                                  | 110  |
|  | drop-out  | min  | %Us                                  | 20   |
|  |   | max  | %Us                                  | 55   |
| AC average coil cons   | umption at 20°C   | Шах  | 7003                                 |  |
| , to average con cons  | of 50/60Hz coil powered at 50Hz   |  |                                      |  |
|  | 51 50/501 12 5511 powered at 501 12   | in-rush  | VA                                   | 75   |
|  |   | holding  | VA                                   | 9  |
|  | of 50/60Hz coil powered at 60Hz   | <del>_</del> _   | ***                                  |  |
|  | 0. 00,001.12 00.1 powerou at 001.12   | in-rush  | VA                                   | 70   |
|  |   | holding  | VA                                   | 6.5  |
|  | of 60Hz coil powered at 60Hz  | 3  |                                      |  |
|  | 1 1 1   | in-rush  | VA                                   | 75   |
|  |   | holding  | VA                                   | 9  |
| Dissipation at holding   | ≤20°C 50Hz  |  | W                                    | 2.5  |
| Max cycles frequency   |   |  |                                      |  |
|  |   |  |                                      |  |
| Mechanical operation   |   |  | cycles/h                             | 3600   |
| Mechanical operation Operating times   |   |  | cycles/h                             | 3600   |
| Mechanical operation   | ontrol  |  | cycles/h                             | 3600   |
| Mechanical operation Operating times   | ontrol<br>in AC   |  | cycles/h                             | 3600   |
| Mechanical operation Operating times   | ontrol  |  |                                      |  |
| Mechanical operation Operating times   | ontrol<br>in AC   | min  | ms                                   | 8  |
| Mechanical operation Operating times   | ontrol<br>in AC<br>Closing I  | min<br>max   |                                      |  |
| Mechanical operation Operating times   | ontrol<br>in AC   | min<br>max<br>NO   | ms<br>ms                             | 8<br>24  |
| Mechanical operation Operating times   | ontrol<br>in AC<br>Closing I  | min<br>max<br>NO<br>min  | ms<br>ms<br>ms                       | 8<br>24<br>10  |
| Mechanical operation Operating times   | ontrol<br>in AC<br>Closing I<br>Opening   | min<br>max<br>NO<br>min<br>max   | ms<br>ms                             | 8<br>24  |
| Mechanical operation Operating times   | ontrol<br>in AC<br>Closing I  | min<br>max<br>NO<br>min<br>max   | ms<br>ms<br>ms                       | 8<br>24<br>10<br>20  |
| Mechanical operation Operating times   | ontrol<br>in AC<br>Closing I<br>Opening   | min<br>max<br>NO<br>min<br>max<br>NC                                       | ms<br>ms<br>ms<br>ms                 | 8<br>24<br>10<br>20  |
| Mechanical operation Operating times   | ontrol in AC Closing I Opening Closing I  | min<br>max<br>NO<br>min<br>max<br>NC<br>min<br>max                         | ms<br>ms<br>ms                       | 8<br>24<br>10<br>20  |
| Mechanical operation Operating times   | ontrol<br>in AC<br>Closing I<br>Opening   | min max NO min max NC min max NC   | ms<br>ms<br>ms<br>ms                 | 8<br>24<br>10<br>20<br>14<br>28                            |
| Mechanical operation Operating times   | ontrol in AC Closing I Opening Closing I  | min max NO min max NC min max NC min max MC                                | ms<br>ms<br>ms<br>ms<br>ms           | 8<br>24<br>10<br>20<br>14<br>28                            |
| Mechanical operation Operating times Average time for Us of  | ontrol in AC Closing I Opening Closing I  | min max NO min max NC min max NC   | ms<br>ms<br>ms<br>ms                 | 8<br>24<br>10<br>20<br>14<br>28                            |
| Mechanical operation Operating times Average time for Us of  | ontrol in AC Closing I Opening Closing I  | min max NO min max NC min max NC min max MC                                | ms<br>ms<br>ms<br>ms<br>ms           | 8<br>24<br>10<br>20<br>14<br>28                            |
| Mechanical operation Operating times Average time for Us of the control of the co | ontrol in AC Closing I Opening Closing I  | min max NO min max NC min max NC min max NC min max                        | ms<br>ms<br>ms<br>ms<br>ms           | 8<br>24<br>10<br>20<br>14<br>28<br>7<br>18                 |
| Mechanical operation Operating times Average time for Us of the control of the co | ontrol in AC Closing I Opening Closing I  | min max NO min max NC min max NC min max MC                                | ms<br>ms<br>ms<br>ms<br>ms           | 8<br>24<br>10<br>20<br>14<br>28                            |
| Mechanical operation Operating times Average time for Us of the second o | ontrol in AC Closing I Opening Closing I Opening Opening  | min max NO min max NC min max NC min max NC at 480V                        | ms<br>ms<br>ms<br>ms<br>ms           | 8<br>24<br>10<br>20<br>14<br>28<br>7<br>18                 |
| Mechanical operation Operating times Average time for Us of  | ontrol in AC Closing I Opening Closing I Opening of three-phase AC motor erformance                                 | min max NO min max NC min max NC min max NC at 480V                        | ms<br>ms<br>ms<br>ms<br>ms           | 8<br>24<br>10<br>20<br>14<br>28<br>7<br>18                 |
| Mechanical operation Operating times Average time for Us of the second o | ontrol in AC Closing I Opening Closing I Opening Opening  | min max NO min max NC min max NC min max NC at 480V                        | ms<br>ms<br>ms<br>ms<br>ms           | 8<br>24<br>10<br>20<br>14<br>28<br>7<br>18                 |
| Mechanical operation Operating times Average time for Us of the control of the co | ontrol in AC Closing I Opening Closing I Opening of three-phase AC motor erformance                                 | Min max NO min max NC min max NC  MC min max NC min max NC at 480V at 600V | ms<br>ms<br>ms<br>ms<br>ms<br>A      | 8<br>24<br>10<br>20<br>14<br>28<br>7<br>18                 |
| Mechanical operation Operating times Average time for Us of the control of the co | ontrol in AC Closing I Opening Closing I Opening of three-phase AC motor erformance                                 | Min max NO min max NC min max NC min max NC at 480V at 600V                | ms<br>ms<br>ms<br>ms<br>ms<br>A<br>A | 8<br>24<br>10<br>20<br>14<br>28<br>7<br>18<br>7.6<br>0.375 |
| Mechanical operation Operating times Average time for Us of the second o | ontrol in AC  Closing I  Opening  Closing I  Opening  of three-phase AC motor  erformance for single-phase AC motor | Min max NO min max NC min max NC min max NC at 480V at 600V                | ms<br>ms<br>ms<br>ms<br>ms<br>A<br>A | 8<br>24<br>10<br>20<br>14<br>28<br>7<br>18<br>7.6<br>0.375 |

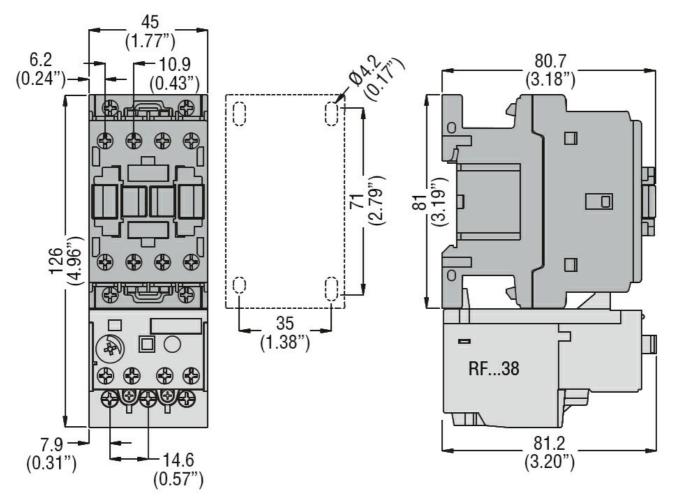




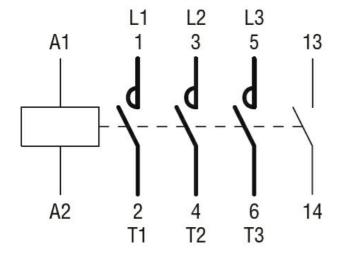
|  |                       | 220/230V              | HP | 3           |
|--|-----------------------|-----------------------|----|-------------|
|  |                       | 460/480V              | HP | 5           |
|  |                       | 575/600V              | HP | 7.5         |
| General USE  |                       |                       |    |             |
|  | Contactor             |                       |    |             |
|  |                       | AC current            | Α  | 25          |
|  | Auxiliary contacts    |                       |    |             |
|  | •                     | AC voltage            | V  | 600         |
|  |                       | AC current            | Α  | 10          |
|  |                       | DC voltage            | V  | 250         |
|  |                       | DC current            | Α  | 1           |
| Short-circuit protection                             | on fuse, 600V         |                       |    |             |
| •  | High fault            |                       |    |             |
|  | · ·                   | Short circuit current | kA | 100         |
|  |                       | Fuse rating           | Α  | 30          |
|  |                       | Fuse class            |    | J           |
|  | Standard fault        |                       |    |             |
|  |                       | Short circuit current | kA | 5           |
|  |                       | Fuse rating           | Α  | 60          |
| Contact rating of auxiliary contacts according to UL |                       |                       |    | A600 - P600 |
| Ambient conditions                                   |                       |                       |    |             |
| Temperature  |                       |                       |    |             |
|  | Operating temperature |                       |    |             |
|  |                       | min                   | °C | -50         |
|  |                       | max                   | °C | 70          |
|  | Storage temperature   |                       |    |             |
|  |                       | min                   | °C | -60         |
|  |                       | max                   | °C | 80          |
| Max altitude   |                       |                       | m  | 3000        |
| Resistance & Protect                                 | tion                  |                       |    |             |
| Pollution degree                                     |                       |                       |    | 3           |
| Dimensions [mm (in)]                                 |                       |                       |    |             |
|  |                       |                       |    |             |

**ENERGY AND AUTOMATION** 

### THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 9A, AC COIL 50/60HZ, 230VAC, 1NO AUXILIARY CONTACT



### Wiring diagrams



### Certifications and compliance

### Compliance

CSA C22.2 n° 60947-1

CSA C22.2 n° 60947-4-1

IEC/EN/BS 60947-1

IEC/EN/BS 60947-4-1

UL 60947-1

UL 60947-4-1

### Certificates

CCC



### BF0910A230

THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 9A, AC COIL 50/60HZ, 230VAC, 1NO AUXILIARY CONTACT

| cULus |  |  |  |
|-------|--|--|--|
| EAC   |  |  |  |

ETIM classification

ETIM 8.0

EC000066 -Power contactor, AC switching