



| Product designation<br>Product type designation                      |                    |     | Power contactor<br>BF09 |
|--|--------------------|-----|-------------------------|
| Contact characteristics  |                    |     | 51.00                   |
| 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                        |                    | А   | 25                      |
| Operational current le   |                    |     |                         |
|  | AC-1 (≤40°C)       | А   | 25                      |
|  | AC-1 (≤55°C)       | А   | 20                      |
|  | AC-1 (≤70°C)       | А   | 18                      |
|  | AC-3 (≤440V ≤55°C) | А   | 9                       |
|  | AC-4 (400V)        | А   | 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 $L/R \le 1$ ms with 1 poles in series |                    |     |                         |
|  | ≤24V               | A   | 15                      |
|  | 48V                | A   | 13                      |
|  | 75V                | A   | 12                      |
|  | 110V               | A   | 6                       |
|  | 220V               | A   | _                       |
| IEC max current le in DC1 with $L/R \le 1$ ms with 2 poles in series | -0 A) (            |     | 10                      |
|  | ≤24V               | A   | 18                      |
|  | 48V                | A   | 18                      |
|  | 75V                | A   | 17                      |
|  | 110V               | A   | 12                      |
| IEC may ourrant to in DC1 with L/D < 1mg with 2 pales in series      | 220V               | A   | 1                       |
| IEC max current le in DC1 with $L/R \le 1$ ms with 3 poles in series | 20 AV /            | ۸   | 20                      |
|  | ≤24V               | A   | 20                      |
|  | 48V                | A   | 20                      |
|  | 75V<br>110V        | A   | 20                      |
|  | 110V               | А   | 15                      |



THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 9A, AC COIL 60HZ, 48VAC, 1NO AUXILIARY CONTACT

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## 220V А 10 IEC max current le in DC1 with L/R ≤ 1ms with 4 poles in series ≤24V 20 А 48V А 20 75V 20 A 110V А 16 220V А 12 IEC max current le in DC3-DC5 with L/R ≤ 15ms with 1 poles in series ≤24V А 10 48V А 9 75V 8 A 2 110V А 220V А \_ IEC max current le in DC3-DC5 with L/R ≤ 15ms with 2 poles in series ≤24V A 13 48V А 11 75V А 10 110V 7 А 220V А 2 IEC max current le in DC3-DC5 with L/R ≤ 15ms with 3 poles in series ≤24V А 15 48V 15 А 75V А 13 110V А 11 220V А 6 IEC max current le in DC3-DC5 with L/R ≤ 15ms with 4 poles in series ≤24V А 15 48V А 15 75V 15 А 110V А 12 220V А 7 Short-time allowable current for 10s (IEC/EN60947-1) Δ 150

| Short-time allowable current for Tos (IEC/EN00947-1) |          | A    | 150 |
|--|----------|------|-----|
| Protection fuse                                      |          |      |     |
|  | gG (IEC) | А    | 25  |
|  | aM (IEC) | А    | 10  |
| Making capacity (RMS value)                          |          | А    | 90  |
| Breaking capacity at voltage                         |          |      |     |
|  | 440V     | А    | 72  |
|  | 500V     | А    | 72  |
|  | 690V     | А    | 71  |
| Resistance per pole (average value)                  |          | mΩ   | 2.5 |
| Power dissipation per pole (average value)           |          |      |     |
|  | Ith      | W    | 1.6 |
|  | AC-3     | W    | 0.2 |
| Tightening torque for terminals                      |          |      |     |
|  | 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

lbin

0.8



THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 9A, AC COIL 60HZ, 48VAC, 1NO AUXILIARY CONTACT

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| Max number of wires  | simultaneously connectable                          | max   | Ibin<br>Nr.  | 0.74  |
|--|---|---|--|---|
| Conductor section  | Sinditaneously connectable                          |   | INI.   | Z   |
|  | AWG/Kcmil   |   |  |   |
|  | Awontenii   | max   |  | 10  |
|  | Flexible w/o lug conductor section                  | max   |  | 10  |
|  |   | min   | mm²  | 1   |
|  |   | max   | mm²  | 6   |
|  | Flexible c/w lug conductor section                  |   |  |   |
|  | , , , , , , , , , , , , , , , , , , ,               | min   | mm²  | 1   |
|  |   | max   | mm²  | 4   |
|  | Flexible with insulated spade lug conductor section |   |  |   |
|  |   | min   | mm²  | 1   |
|  |   | max   | mm²  | 4   |
| Power terminal prote   | ection according to IEC/EN 60529                    |   |  | IP20 when   |
| -  |   |   |  | properly wired  |
| Mechanical features  |   |   |  |   |
| Operating position   |   |   |  |   |
|  |   | normal  |  | Vertical plan   |
|  |   | allowable   |  | ±30°  |
| Fixing   |   |   |  | Screw / DIN ra  |
|  |   |   |  | 35mm  |
| Weight   |   |   | g  | 362   |
| Conductor section  |   |   |  |   |
|  | AWG/kcmil conductor section                         |   |  | 40  |
| Auxiliary contact cha  | ractoriation  | max   |  | 10  |
| Thermal current Ith  | raciensiics   |   | А  | 10  |
| EC/EN 60947-5-1 d  | osignation  |   | A  | A600 - P600   |
| EC/EN 00947-5-1 u  | -   |   |  | A000 - F000   |
| Operating current AC   | `15   |   |  |   |
| Operating current AC   | 215   | 2201/   | ۸  | 2   |
| Operating current AC   | 215   | 230V  | A  | 3   |
| Operating current AC   | 215   | 400V  | А  | 1.9   |
|  |   |   |  |   |
| Operating current AC   |   | 400V<br>500V  | A<br>A   | 1.9<br>1.4  |
| Operating current DC   | 212   | 400V  | А  | 1.9   |
|  | 212   | 400V<br>500V<br>110V  | A<br>A<br>A  | 1.9<br>1.4<br>5.7   |
| Operating current DC   | 212   | 400V<br>500V<br>110V<br>24V   | A<br>A<br>A  | 1.9<br>1.4<br>5.7<br>5.7  |
| Operating current DC   | 212   | 400V<br>500V<br>110V<br>24V<br>48V  | A<br>A<br>A<br>A   | 1.9<br>1.4<br>5.7<br>5.7<br>2.9   |
| Operating current DC   | 212   | 400V<br>500V<br>110V<br>24V   | A<br>A<br>A  | 1.9<br>1.4<br>5.7<br>5.7  |
| Operating current DC   | 212   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V                                 | A<br>A<br>A<br>A<br>A<br>A   | 1.9<br>1.4<br>5.7<br>5.7<br>2.9<br>2.3  |
| Operating current DC   | 212   | 400V<br>500V<br>110V<br>24V<br>48V<br>60V<br>110V                         | A<br>A<br>A<br>A<br>A<br>A<br>A                                    | 1.9<br>1.4<br>5.7<br>5.7<br>2.9<br>2.3<br>1.25  |
| Operating current DC   | 212   | 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<br>A<br>A                               | 1.9<br>1.4<br>5.7<br>5.7<br>2.9<br>2.3<br>1.25<br>1.1                                       |
| Operating current DC   | 212   | 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>A<br>A<br>A                     | 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                               |
| Dperating current DC   | 212   | 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>A<br>A<br>A                     | 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                               |
| Operating current DC<br>Operating current DC   | 212   | 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>A<br>A<br>A<br>A                | 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                        |
| Operating current DC<br>Operating current DC<br>Operations<br>Vechanical life  | 212   | 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>A<br>A<br>A<br>Cycles           | 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<br>Operating current DC<br>Operations<br>Mechanical life<br>Electrical life<br>Safety related data                        | 212   | 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>A<br>A<br>A<br>Cycles           | 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<br>Operating current DC<br>Operations<br>Mechanical life<br>Electrical life<br>Safety related data                        | 212   | 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>A<br>A<br>A<br>Cycles           | 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<br>Operating current DC<br>Operations<br>Mechanical life<br>Electrical life<br>Safety related data                        | 212<br>213<br>10d 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<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>Cycles<br>cycles | 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<br>2000000 |
| Operating current DC<br>Operating current DC<br>Operations<br>Mechanical life<br>Electrical life<br>Safety related data<br>Performance level B | 212<br>213<br>10d 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<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>A<br>Cycles<br>cycles | 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<br>2000000 |



BF0910A04860 THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 9A, AC COIL 60HZ,

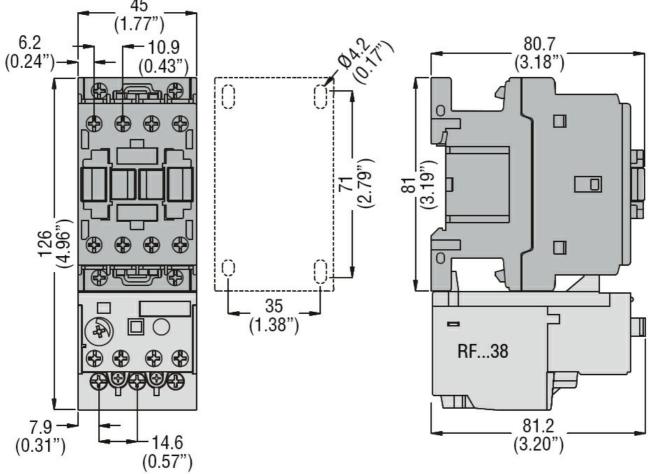
48VAC, 1NO AUXILIARY CONTACT

|                                      |                            |  | V                                  | 48                                      |
|--------------------------------------|----------------------------|--|------------------------------------|---|
| AC operating voltage                 |                            |  |                                    |   |
| of 6                                 | 0Hz coil powered at 60Hz   |  |                                    |   |
|                                      | pick-up                    |  |                                    |   |
|                                      |                            | min  | %Us                                | 80                                      |
|                                      |                            | max  | %Us                                | 110                                     |
|                                      | drop-out                   |  | 0/11                               |   |
|                                      |                            | min  | %Us                                | 20                                      |
|                                      |                            | max  | %Us                                | 55                                      |
| AC average coil consumptio           |                            |  |                                    |   |
| 010                                  | 0Hz coil powered at 60Hz   | in ruch  | \/A                                | 75                                      |
|                                      |                            | in-rush  | VA                                 | 75<br>9                                 |
| Dissinction at holding <20°C         |                            | holding  | VA<br>W                            | 2.5                                     |
| Dissipation at holding ≤20°C         | , 50HZ                     |  | VV                                 | 2.5                                     |
| Max cycles frequency                 |                            |  | ovoloo/b                           | 2600                                    |
| Mechanical operation Operating times |                            |  | cycles/h                           | 3600                                    |
| Average time for Us control          |                            |  |                                    |   |
| in A                                 | C                          |  |                                    |   |
| III A                                | Closing NO                 |  |                                    |   |
|                                      |                            | min  | ms                                 | 8                                       |
|                                      |                            | max  | ms                                 | 24                                      |
|                                      | Opening NO                 |  |                                    |   |
|                                      |                            | min  | ms                                 | 10                                      |
|                                      |                            | max  | ms                                 | 20                                      |
|                                      | Closing NC                 |  |                                    |   |
|                                      | -                          | min  | ms                                 | 14                                      |
|                                      |                            | max  | ms                                 | 28                                      |
|                                      | Opening NC                 |  |                                    |   |
|                                      |                            | min  | ms                                 | 7                                       |
|                                      |                            | max  | ms                                 | 18                                      |
| UL technical data                    |                            |  |                                    |   |
| Full-load current (FLA) for th       | ree-phase AC motor         |  |                                    |   |
|                                      |                            | at 480V  | Α                                  | 7.6                                     |
|                                      |                            | at 600V  | A                                  | 0.375                                   |
| Yielded mechanical perform           |                            |  |                                    |   |
| for s                                | single-phase AC motor      |  |                                    | 0.75                                    |
|                                      |                            | 110/120V   | HP                                 | 0.75                                    |
|                                      |                            | 0.2017   | HP                                 | 2                                       |
| -                                    |                            | 230V   |                                    |   |
| for t                                | three-phase AC motor       |  |                                    | 2                                       |
| for t                                | hree-phase AC motor        | 200/208V   | HP                                 | 3                                       |
| for t                                | hree-phase AC motor        | 200/208V<br>220/230V   | HP<br>HP                           | 3                                       |
| for t                                | three-phase AC motor       | 200/208V<br>220/230V<br>460/480V   | HP<br>HP<br>HP                     | 3<br>5                                  |
|                                      | hree-phase AC motor        | 200/208V<br>220/230V   | HP<br>HP                           | 3                                       |
| General USE                          |                            | 200/208V<br>220/230V<br>460/480V   | HP<br>HP<br>HP                     | 3<br>5                                  |
| General USE                          | three-phase AC motor       | 200/208V<br>220/230V<br>460/480V<br>575/600V   | HP<br>HP<br>HP<br>HP               | 3<br>5<br>7.5                           |
| General USE<br>Con                   | ntactor                    | 200/208V<br>220/230V<br>460/480V   | HP<br>HP<br>HP                     | 3<br>5                                  |
| General USE<br>Con                   |                            | 200/208V<br>220/230V<br>460/480V<br>575/600V<br>AC current   | HP<br>HP<br>HP<br>HP               | 3<br>5<br>7.5<br>25                     |
| General USE<br>Con                   | ntactor                    | 200/208V<br>220/230V<br>460/480V<br>575/600V<br>AC current<br>AC voltage                             | HP<br>HP<br>HP<br>A                | 3<br>5<br>7.5<br>25<br>600              |
| General USE<br>Con                   | ntactor                    | 200/208V<br>220/230V<br>460/480V<br>575/600V<br>AC current<br>AC voltage<br>AC current               | HP<br>HP<br>HP<br>A<br>A           | 3<br>5<br>7.5<br>25<br>600<br>10        |
| General USE<br>Con                   | ntactor                    | 200/208V<br>220/230V<br>460/480V<br>575/600V<br>AC current<br>AC voltage<br>AC current<br>DC voltage | HP<br>HP<br>HP<br>A<br>V<br>A<br>V | 3<br>5<br>7.5<br>25<br>600<br>10<br>250 |
| General USE<br>Con                   | ntactor<br>iliary contacts | 200/208V<br>220/230V<br>460/480V<br>575/600V<br>AC current<br>AC voltage<br>AC current               | HP<br>HP<br>HP<br>A<br>A           | 3<br>5<br>7.5<br>25<br>600<br>10        |



**BF0910A04860** THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 9A, AC COIL 60HZ, 48VAC, 1NO AUXILIARY CONTACT

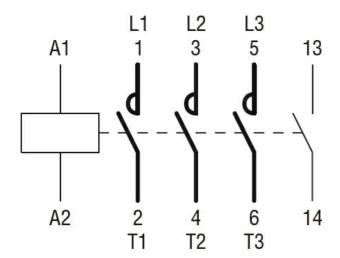
|                             |                            | Short circuit current | kA | 100         |
|-----------------------------|----------------------------|-----------------------|----|-------------|
|                             |                            | Fuse rating           | А  | 30          |
|                             |                            | Fuse class            |    | J           |
| ;                           | Standard fault             |                       |    |             |
|                             |                            | Short circuit current | kA | 5           |
|                             |                            | Fuse rating           | А  | 60          |
| Contact rating of auxiliary | y 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 & Protection     |                            |                       |    |             |
| Pollution degree            |                            |                       |    | 3           |
| Dimensions                  |                            |                       |    |             |
|                             | 5                          |                       |    |             |



## Wiring diagrams

BF0910A04860





## Certifications and compliance

## 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                    |
|                     | cULus                  |
|                     | EAC                    |
| ETIM classification |                        |

**ETIM 8.0** 

EC000066 -Power contactor, AC switching