# BF0901A230

THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 9A, AC COIL 50/60HZ, 230VAC, 1NC AUXILIARY CONTACT

| | | | |
|---|---|---|---|
| Product designation | | | Power contactor |
| Product type designation | | | BF09 |
| **Contact characteristics** | | | |
| 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 | | A | 25 |
| Operational current Ie | | | |
| | AC-1 (≤40°C) | A | 25 |
| | AC-1 (≤55°C) | A | 20 |
| | AC-1 (≤70°C) | A | 18 |
| | AC-3 (≤440V ≤55°C) | A | 9 |
| | AC-4 (400V) | A | 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 Ie in DC1 with L/R ≤ 1ms with 1 poles in series | | | |
| | ≤24V | A | 15 |
| | 48V | A | 13 |
| | 75V | A | 12 |
| | 110V | A | 6 |
| | 220V | A | – |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 2 poles in series | | | |
| | ≤24V | A | 18 |
| | 48V | A | 18 |
| | 75V | A | 17 |
| | 110V | A | 12 |
| | 220V | A | 1 |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 3 poles in series | | | |
| | ≤24V | A | 20 |
| | 48V | A | 20 |
| | 75V | A | 20 |
| | 110V | A | 15 |


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| | | | |
|---|---|---|---|
| | 220V | A | 10 |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 4 poles in series | | | |
| | ≤24V | A | 20 |
| | 48V | A | 20 |
| | 75V | A | 20 |
| | 110V | A | 16 |
| | 220V | A | 12 |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series | | | |
| | ≤24V | A | 10 |
| | 48V | A | 9 |
| | 75V | A | 8 |
| | 110V | A | 2 |
| | 220V | A | – |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series | | | |
| | ≤24V | A | 13 |
| | 48V | A | 11 |
| | 75V | A | 10 |
| | 110V | A | 7 |
| | 220V | A | 2 |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series | | | |
| | ≤24V | A | 15 |
| | 48V | A | 15 |
| | 75V | A | 13 |
| | 110V | A | 11 |
| | 220V | A | 6 |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series | | | |
| | ≤24V | A | 15 |
| | 48V | A | 15 |
| | 75V | A | 15 |
| | 110V | A | 12 |
| | 220V | A | 7 |
| Short-time allowable current for 10s (IEC/EN60947-1) | | A | 150 |
| Protection fuse | | | |
| | gG (IEC) | A | 25 |
| | aM (IEC) | A | 10 |
| Making capacity (RMS value) | | A | 90 |
| Breaking capacity at voltage | | | |
| | 440V | A | 72 |
| | 500V | A | 72 |
| | 690V | A | 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 | Ibin | 1.1 |
| | max | Ibin | 1.5 |
| Tightening torque for coil terminal | | | |
| | min | Nm | 0.8 |
| | max | Nm | 1 |
| | min | Ibin | 0.8 |


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| | | | | |
|---|---|---|---|---|
| | | max | Ibin | 0.74 |
| Max number of wires simultaneously connectable | | | Nr. | 2 |
| Conductor section | | | | |
| | AWG/Kcmil | | | |
| | | max | | 10 |
| | Flexible w/o lug conductor section | | | |
| | | 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 protection according to IEC/EN 60529 | | | | IP20 when properly wired |
| **Mechanical features** | | | | |
| Operating position | | | | |
| | | normal | | Vertical plan |
| | | allowable | | ±30° |
| Fixing | | | | Screw / DIN rail 35mm |
| Weight | | | g | 356 |
| **Auxiliary contact characteristics** | | | | |
| Thermal current Ith | | | A | 10 |
| IEC/EN 60947-5-1 designation | | | | A600 - P600 |
| Operating current AC15 | | | | |
| | | 230V | A | 3 |
| | | 400V | A | 1.9 |
| | | 500V | A | 1.4 |
| Operating current DC12 | | | | |
| | | 110V | A | 5.7 |
| Operating current DC13 | | | | |
| | | 24V | A | 5.7 |
| | | 48V | A | 2.9 |
| | | 60V | A | 2.3 |
| | | 110V | A | 1.25 |
| | | 125V | A | 1.1 |
| | | 220V | A | 0.55 |
| | | 600V | A | 0.2 |
| **Operations** | | | | |
| Mechanical life | | | cycles | 20000000 |
| Electrical life | | | cycles | 2000000 |
| **Safety related data** | | | | |
| Performance level B10d according to EN/ISO 13489-1 | | | | |
| | | rated load | cycles | 2000000 |
| | | mechanical load | cycles | 20000000 |
| Mirror contats according to IEC/EN 609474-4-1 | | | | Yes |
| EMC compatibility | | | | yes |
| **AC coil operating** | | | | |
| Rated AC voltage at 50/60Hz | | | V | 230 |
| AC operating voltage | | | | |
| | of 50/60Hz coil powered at 50Hz | | | |


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| | | | | |
|---|---|---|---|---|
| | pick-up | | | |
| | | min | %Us | 80 |
| | | max | %Us | 110 |
| | drop-out | | | |
| | | min | %Us | 20 |
| | | max | %Us | 55 |
| of 50/60Hz coil powered at 60Hz | | | | |
| | pick-up | | | |
| | | min | %Us | 85 |
| | | max | %Us | 110 |
| | drop-out | | | |
| | | min | %Us | 20 |
| | | max | %Us | 55 |
| AC average coil consumption at 20°C | | | | |
| of 50/60Hz coil powered at 50Hz | | | | |
| | | in-rush | VA | 75 |
| | | holding | VA | 9 |
| of 50/60Hz coil powered at 60Hz | | | | |
| | | in-rush | VA | 70 |
| | | holding | VA | 6.5 |
| of 60Hz coil powered at 60Hz | | | | |
| | | in-rush | VA | 75 |
| | | holding | VA | 9 |
| Dissipation at holding ≤20°C 50Hz | | | W | 2.5 |
| **Max cycles frequency** | | | | |
| Mechanical operation | | | cycles/h | 3600 |
| **Operating times** | | | | |
| Average time for Us control | | | | |
| in AC | | | | |
| | 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** | | | | |
| Rated operational voltage AC (UL) | | | V | 600 |
| Full-load current (FLA) for three-phase AC motor | | | | |
| | | at 480V | A | 7.6 |
| | | at 600V | A | 9 |
| Yielded mechanical performance | | | | |
| for single-phase AC motor | | | | |
| | | 110/120V | HP | 0.75 |
| | | 230V | HP | 2 |
| for three-phase AC motor | | | | |
| | | 200/208V | HP | 3 |
| | | 220/230V | HP | 3 |
| | | 460/480V | HP | 5 |


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| | | | | |
|---|---|---|---|---|
| | | 575/600V | HP | 7.5 |
| General USE | | | | |
| | Contactor | | | |
| | | AC current | A | 25 |
| | Auxiliary contacts | | | |
| | | AC voltage | V | 600 |
| | | AC current | A | 10 |
| | | DC voltage | V | 250 |
| | | DC current | A | 1 |
| Short-circuit protection fuse, 600V | | | | |
| | High fault | | | |
| | | Short circuit current | kA | 100 |
| | | Fuse rating | A | 30 |
| | | Fuse class | | J |
| | Standard fault | | | |
| | | Short circuit current | kA | 5 |
| | | Fuse rating | A | 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 & Protection** | | | | |
| Pollution degree | | | | 3 |
| **Dimensions** | | | | |


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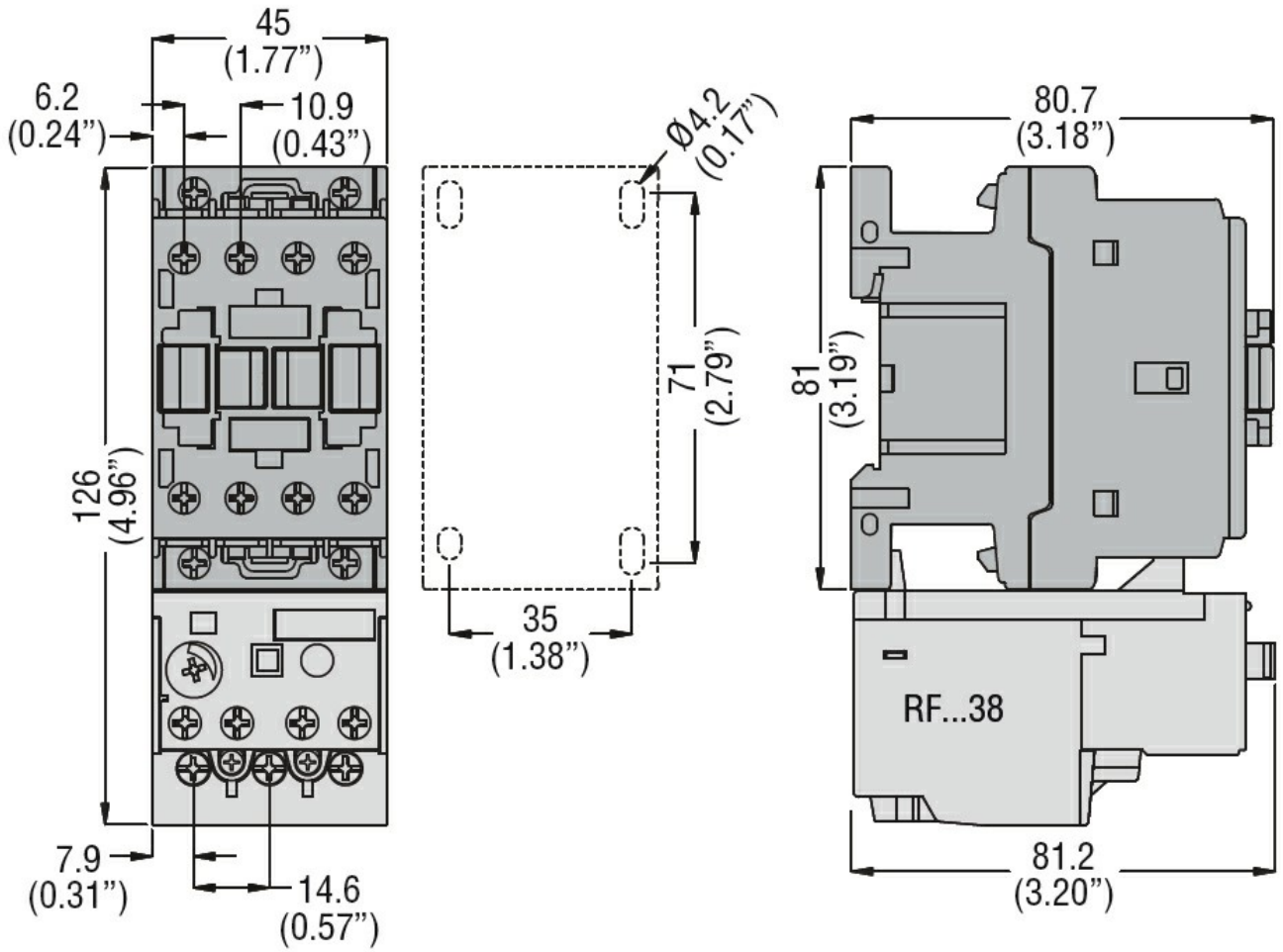
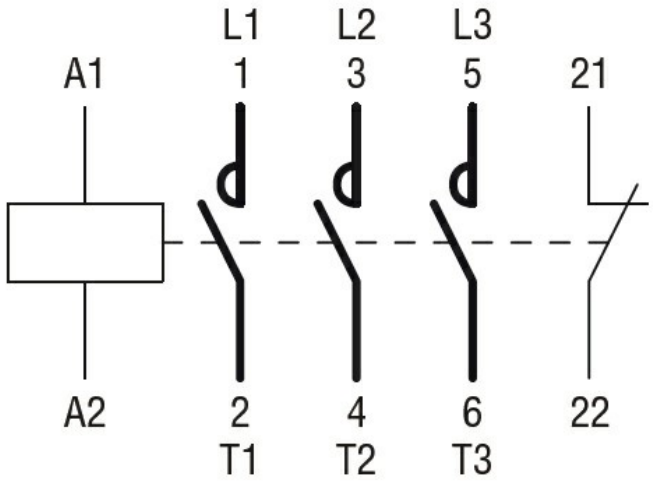



## Wiring diagrams




## 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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| | |
|---|---|
| CCC | |
| cULus | |
| EAC | |

## ETIM classification

| | |
|---|---|
| ETIM 8.0 | EC000066 - Power contactor, AC switching |


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