



Power contactor  
BF09

Product designation

Product type designation

**Contact characteristics**

|   |                    |        |
|---|--------------------|--------|
| Number of poles   | nr.                | 3      |
| Rated insulation voltage U <sub>i</sub> IEC/EN                              | V                  | 690    |
| Rated impulse withstand voltage U <sub>imp</sub>                            | kV                 | 6      |
| Operational frequency   | min                | Hz 25  |
|   | max                | Hz 400 |
| IEC Conventional free air thermal current I <sub>th</sub>                   | A                  | 25     |
| Operational current I <sub>e</sub>  | 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 I <sub>e</sub> 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 I <sub>e</sub> 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 I <sub>e</sub> in DC1 with L/R ≤ 1ms with 3 poles in series | ≤24V               | A 20   |
|   | 48V                | A 20   |
|   | 75V                | A 20   |
|   | 110V               | A 15   |

|  |          |      |     |
|--|----------|------|-----|
|  | 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 |
|  | AC3      | 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      | Ibft | 0.8 |

|   |                              |                 |                       |
|---|------------------------------|-----------------|-----------------------|
|   | max                          | lbft            | 0.74                  |
| Max number of wires simultaneously connectable      |                              | nr.             | 2                     |
| Conductor section                                   |                              |                 |                       |
| Flexible w/o lug conductor section                  | min                          | mm <sup>2</sup> | 1                     |
|   | max                          | mm <sup>2</sup> | 6                     |
| Flexible c/w lug conductor section                  | min                          | mm <sup>2</sup> | 1                     |
|   | max                          | mm <sup>2</sup> | 4                     |
| Flexible with insulated spade lug conductor section | min                          | mm <sup>2</sup> | 1                     |
|   | max                          | mm <sup>2</sup> | 4                     |
| Power terminal protection according to IEC/EN 60529 |                              |                 | IP20 when wired       |
| <b>Mechanical features</b>                          |                              |                 |                       |
| Operating position                                  |                              |                 |                       |
|   | normal allowable             |                 | Vertical plan ±30°    |
| Fixing  |                              |                 | Screw / DIN rail 35mm |
| Weight  |                              | g               | 358                   |
| <b>Auxiliary contact characteristics</b>            |                              |                 |                       |
| Type of contact                                     |                              |                 | 1 NO                  |
| Thermal current I <sub>th</sub>                     |                              | 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                   |
| <b>Operations</b>                                   |                              |                 |                       |
| Mechanical life                                     |                              | cycles          | 20000000              |
| Electrical life                                     |                              | cycles          | 2000000               |
| <b>Safety related data</b>                          |                              |                 |                       |
| Performance level B10d according to EN/ISO 13489-1  |                              |                 |                       |
|   | rated load                   | cycles          | 2000000               |
|   | mechanical load              | cycles          | 20000000              |
| Mirror contacts according to IEC/EN 60947-4-1       |                              |                 | yes                   |
| EMC compatibility                                   |                              |                 | yes                   |
| Rated AC voltage at 60Hz                            |                              | V               | 24                    |
| <b>AC coil operating</b>                            |                              |                 |                       |
| AC operating voltage                                |                              |                 |                       |
|   | of 60Hz coil powered at 60Hz |                 |                       |
|   | pick-up                      |                 |                       |
|   | min                          | %Us             | 80                    |

|  |            |          |       |
|--|------------|----------|-------|
| drop-out   | max        | %Us      | 110   |
|  | 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   |
| <b>Max cycles frequency</b>                      |            |          |       |
| Mechanical operation                             |            | cycles/h | 3600  |
| <b>Operating times</b>                           |            |          |       |
| 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    |
| <b>UL technical data</b>                         |            |          |       |
| Full-load current (FLA) for three-phase AC motor |            |          |       |
|  | at 480V    | A        | 7.6   |
|  | at 600V    | A        | 0.375 |
| 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     |
|  | 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

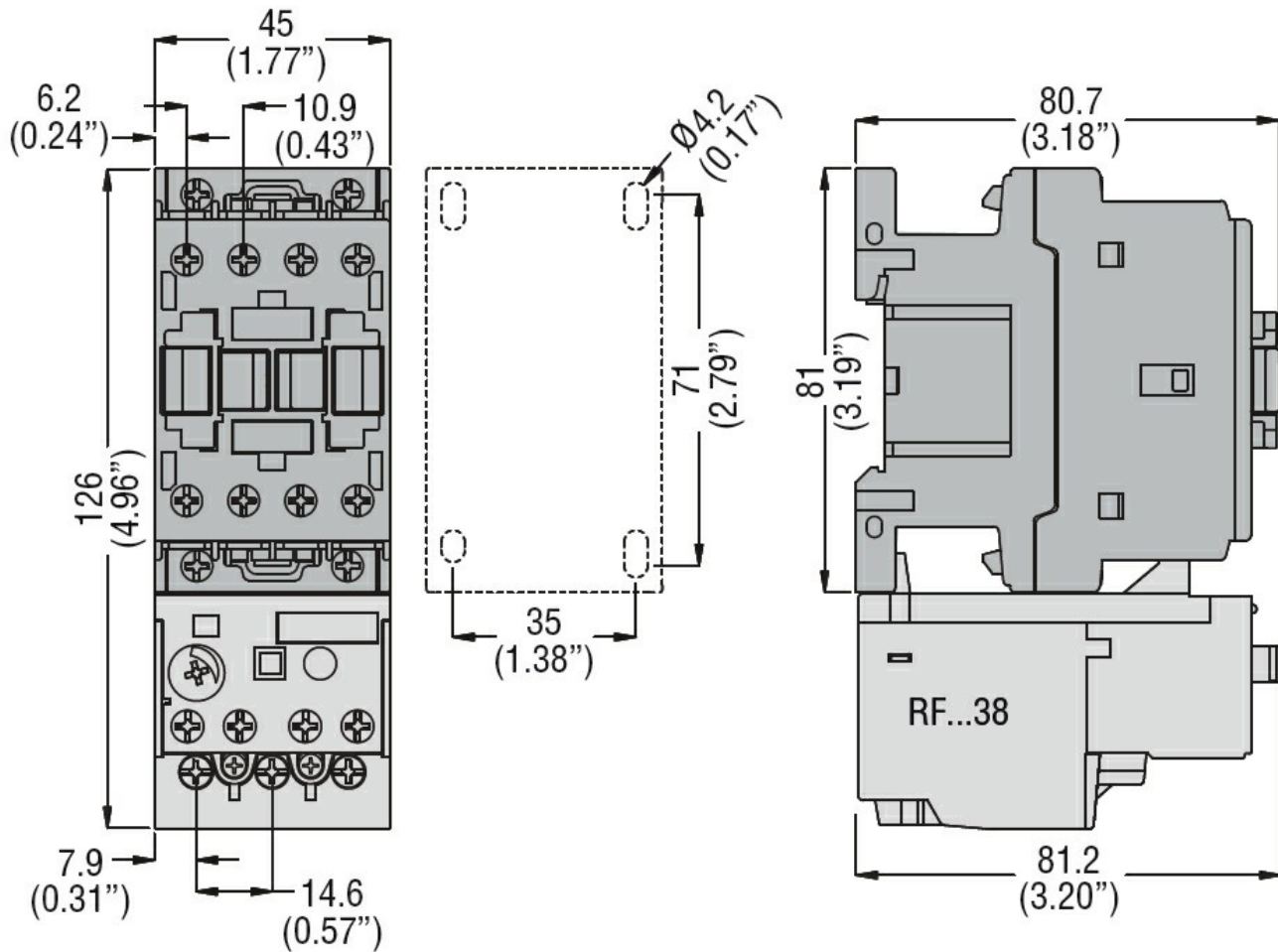
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**Resistance & Protection**

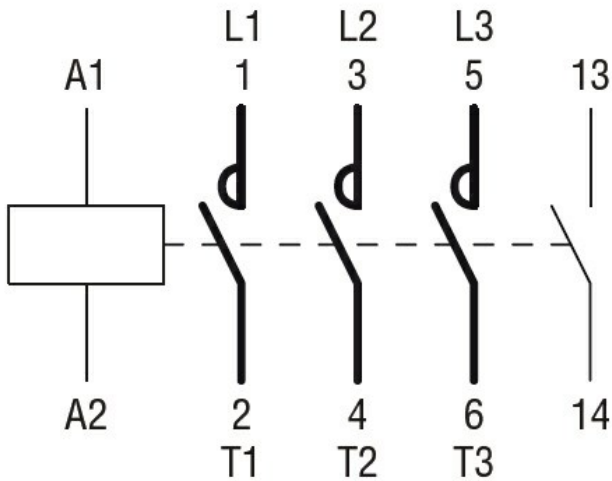
Pollution degree

3

**Dimensions**



**Wiring diagrams**



**Certifications and compliance**

Compliance

CSA C22.2 n° 60947-1

CSA C22.2 n° 60947-4-1

IEC/EN 60947-1

IEC/EN 60947-4-1

UL 60947-1

UL 60947-4-1

Certificates

CCC

cULus

EAC

**ETIM classification**

ETIM 8.0

EC000066 -  
 Power contactor,  
 AC switching