



Product designation

Power contactor

Product type designation

BF09

**Contact characteristics**

|                                                                                |                                                    |        |
|--------------------------------------------------------------------------------|----------------------------------------------------|--------|
| Number of poles                                                                | Nr.                                                | 4      |
| Rated insulation voltage $U_i$ IEC/EN                                          | V                                                  | 690    |
| Rated impulse withstand voltage $U_{imp}$                                      | kV                                                 | 6      |
| Operational frequency                                                          | min                                                | Hz 25  |
|                                                                                | max                                                | Hz 400 |
| IEC Conventional free air thermal current $I_{th}$                             | A                                                  | 25     |
| Operational current $I_e$                                                      | AC-1 ( $\leq 40^\circ\text{C}$ )                   | A 25   |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                   | A 20   |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                   | A 18   |
|                                                                                | AC-3 ( $\leq 440\text{V } \leq 55^\circ\text{C}$ ) | A 9    |
|                                                                                | AC-4 (400V)                                        | A 4.9  |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V                                               | kW 9.5 |
|                                                                                | 400V                                               | kW 16  |
|                                                                                | 500V                                               | kW 21  |
|                                                                                | 690V                                               | kW 27  |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                  | A 15   |
|                                                                                | 48V                                                | A 13   |
|                                                                                | 75V                                                | A 12   |
|                                                                                | 110V                                               | A 6    |
|                                                                                | 220V                                               | A –    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 2 poles in series | $\leq 24\text{V}$                                  | A 18   |
|                                                                                | 48V                                                | A 18   |
|                                                                                | 75V                                                | A 17   |
|                                                                                | 110V                                               | A 12   |
|                                                                                | 220V                                               | A 1    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$                                  | A 20   |
|                                                                                | 48V                                                | A 20   |
|                                                                                | 75V                                                | A 20   |
|                                                                                | 110V                                               | A 15   |
|                                                                                | 220V                                               | A 10   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 4 poles in series | $\leq 24\text{V}$                                  | A 20   |
|                                                                                | 48V                                                | A 20   |
|                                                                                | 75V                                                | A 20   |
|                                                                                | 110V                                               | A 16   |
|                                                                                | 220V                                               | A 12   |

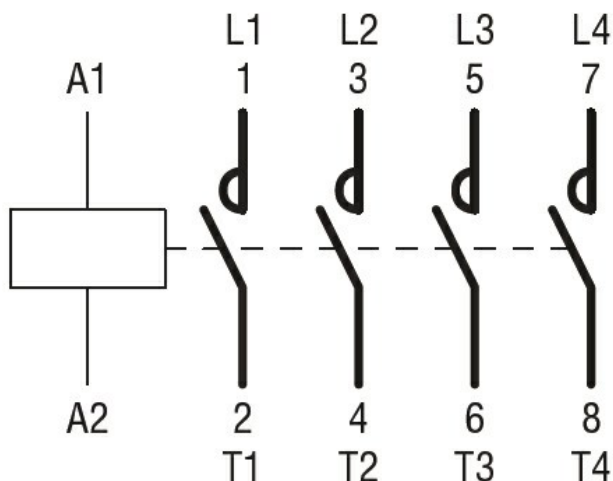
|                                                                      |          |      |      |
|----------------------------------------------------------------------|----------|------|------|
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series |          |      |      |
| ≤24V                                                                 | 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  |
|                                                                      | 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              | 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 properly wired |
| <b>Mechanical features</b>                          |                  |                 |                          |
| Operating position                                  | normal allowable |                 | Vertical plan ±30°       |
| Fixing                                              |                  |                 | Screw / DIN rail 35mm    |
| Weight                                              |                  | g               | 368                      |
| <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                 |
| EMC compatibility                                   |                  |                 | yes                      |
| <b>AC coil operating</b>                            |                  |                 |                          |
| Rated AC voltage at 60Hz                            |                  | V               | 220                      |
| AC operating voltage                                |                  |                 |                          |
| of 60Hz coil powered at 60Hz                        |                  |                 |                          |
| pick-up                                             | min              | %Us             | 80                       |
|                                                     | max              | %Us             | 110                      |
| drop-out                                            | min              | %Us             | 20                       |
|                                                     | max              | %Us             | 55                       |
| AC average coil consumption at 20°C                 |                  |                 |                          |
| of 60Hz coil powered at 60Hz                        | in-rush holding  | VA              | 75                       |
|                                                     |                  | 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>                         |                       |     |    |      |
| 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    |
|                                                  | 575/600V              | HP  |    | 7.5  |
| General USE                                      |                       |     |    |      |
| Contactor                                        |                       |     |    |      |
|                                                  | AC current            | A   |    | 25   |
| 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   |
| <b>Ambient conditions</b>                        |                       |     |    |      |
| Temperature                                      |                       |     |    |      |
| Operating temperature                            |                       |     |    |      |
|                                                  | min                   | °C  |    | -50  |
|                                                  | max                   | °C  |    | 70   |
| Storage temperature                              |                       |     |    |      |
|                                                  | min                   | °C  |    | -60  |
|                                                  | max                   | °C  |    | 80   |
| Max altitude                                     |                       |     | m  | 3000 |
| <b>Resistance &amp; Protection</b>               |                       |     |    |      |
| Pollution degree                                 |                       |     |    | 3    |
| <b>Dimensions</b>                                |                       |     |    |      |



#### 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

cULus

EAC

#### ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching