



|   |                    |    |     |                 |
|---|--------------------|----|-----|-----------------|
| Product designation   |                    |    |     | Power contactor |
| Product type designation  |                    |    |     | BF09            |
| <b>Contact characteristics</b>  |                    |    |     |                 |
| Number of poles   | Nr.                |    |     | 4               |
| 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-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 I <sub>e</sub> 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 I<sub>e</sub> 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 I<sub>e</sub> 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 I<sub>e</sub> 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 I<sub>e</sub> 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)

|                 |   |     |
|-----------------|---|-----|
| I <sub>th</sub> | W | 1.6 |
| AC-3            | W | 0.2 |

Tightening torque for terminals

|     |                  |     |
|-----|------------------|-----|
| min | Nm               | 1.5 |
| max | Nm               | 1.8 |
| min | I <sub>bin</sub> | 1.1 |
| max | I <sub>bin</sub> | 1.5 |

Tightening torque for coil terminal

|     |                  |      |
|-----|------------------|------|
| min | Nm               | 0.8  |
| max | Nm               | 1    |
| min | I <sub>bin</sub> | 0.8  |
| max | I <sub>bin</sub> | 0.74 |

Max number of wires simultaneously connectable

|     |   |
|-----|---|
| Nr. | 2 |
|-----|---|

Conductor section

AWG/Kcmil

|     |    |
|-----|----|
| max | 10 |
|-----|----|

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 properly wired |
| <b>Mechanical features</b>                          |  |                            |                 |                          |
| Operating position                                  |  | normal allowable           |                 | Vertical plan ±30°       |
| Fixing  |  |                            |                 | Screw / DIN rail 35mm    |
| Weight  |  |                            | g               | 496                      |
| Conductor section                                   | AWG/kcmil conductor section              | max                        |                 | 10                       |
| <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 mechanical load | cycles          | 2000000                  |
|   |  |                            | cycles          | 20000000                 |
| Mirror contacts according to IEC/EN 60947-4-1       |  |                            |                 | yes                      |
| EMC compatibility                                   |  |                            |                 | yes                      |
| <b>AC coil operating</b>                            |  |                            |                 |                          |
| AC operating voltage                                | of 50/60Hz coil powered at 50Hz drop-out | max                        | %Us             | 55                       |
| <b>DC coil operating</b>                            |  |                            |                 |                          |
| DC rated control voltage                            |  |                            | V               | 48                       |
| DC operating voltage                                | pick-up                                  | min                        | %Us             | 80                       |
|   |  | max                        | %Us             | 110                      |
|   | drop-out                                 | min                        | %Us             | 10                       |
|   |  | max                        | %Us             | 40                       |
| Average coil consumption ≤20°C                      |  | in-rush holding            | W               | 2.4                      |
|   |  |                            | W               | 2.4                      |
| <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 |
| <hr/> |            |     |    |    |
|       | in DC      |     |    |    |
|       | Closing NO |     |    |    |
|       |            | min | ms | 75 |
|       |            | max | ms | 91 |
|       | Opening NO |     |    |    |
|       |            | min | ms | 15 |
|       |            | max | ms | 19 |

**UL technical data**

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 |
|------------|---|----|

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 |

**Ambient conditions**

Temperature

Operating temperature

|     |    |     |
|-----|----|-----|
| min | °C | -50 |
| max | °C | 70  |

Storage temperature

|     |    |     |
|-----|----|-----|
| min | °C | -60 |
| max | °C | 80  |

Max altitude

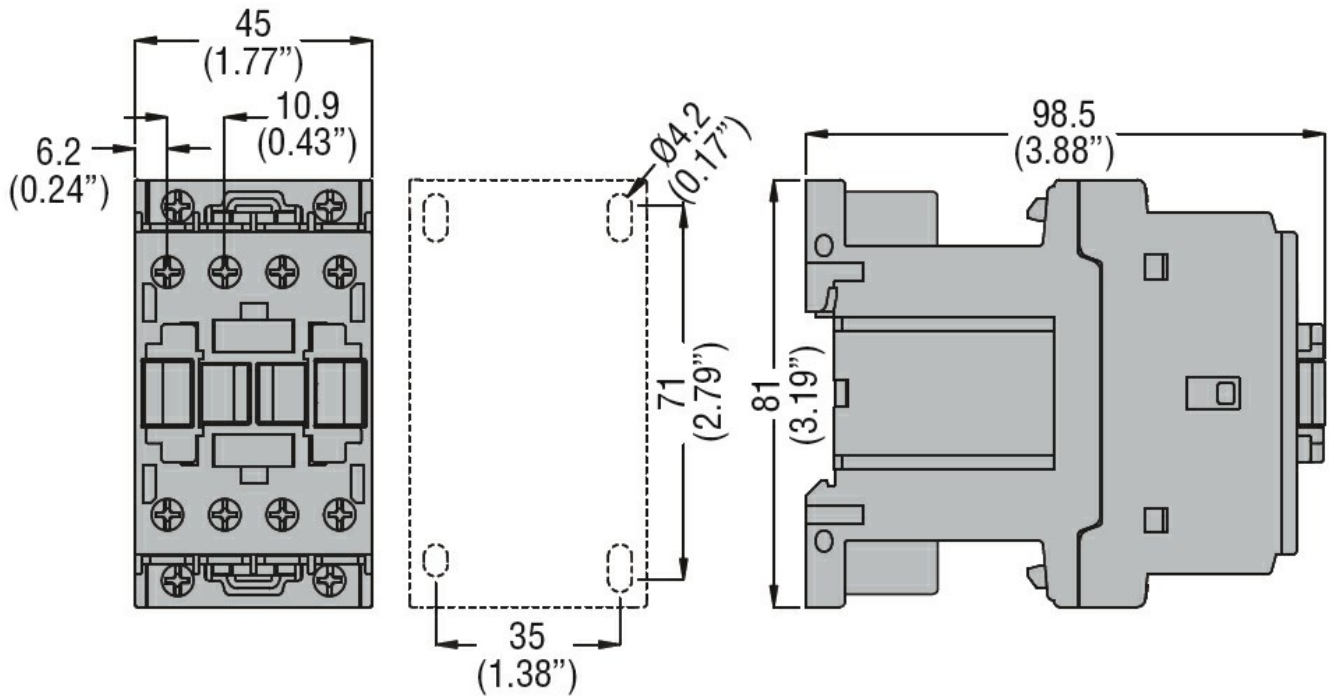
|   |      |
|---|------|
| m | 3000 |
|---|------|

**Resistance & Protection**

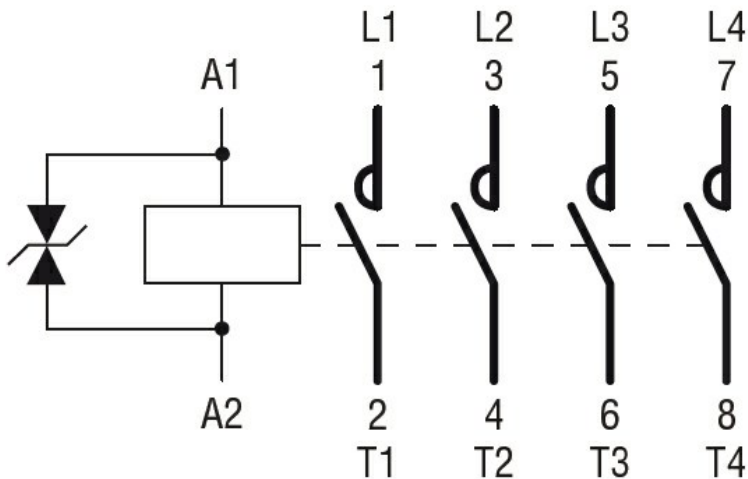
Pollution degree

3

**Dimensions**



### 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