



Product designation

Power contactor

Product type designation

BF38

**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                                                         | 56     |
| Operational current $I_e$                                          |                                                           |        |
|                                                                    | AC-1 (=40°C)                                              | A 56   |
|                                                                    | AC-1 (=40°C) with 16mm <sup>2</sup> wire and fork end lug | A 60   |
|                                                                    | AC-1 (=55°C)                                              | A 45   |
|                                                                    | AC-1 (=55°C) with 16mm <sup>2</sup> wire and fork end lug | A 48   |
|                                                                    | AC-1 (=70°C)                                              | A 40   |
|                                                                    | AC-1 (=70°C) with 16mm <sup>2</sup> wire and fork end lug | A 42   |
|                                                                    | AC-3 (=440V =55°C)                                        | A 38   |
|                                                                    | AC-4 (400V)                                               | A 15.5 |
| Rated operational power AC-1 (T=40°C)                              |                                                           |        |
|                                                                    | 230V                                                      | kW 21  |
|                                                                    | 400V                                                      | kW 36  |
|                                                                    | 500V                                                      | kW 45  |
|                                                                    | 690V                                                      | kW 62  |
| IEC max current $I_e$ in DC1 with L/R = 1ms with 1 poles in series |                                                           |        |
|                                                                    | =24V                                                      | A 35   |
|                                                                    | 48V                                                       | A 30   |
|                                                                    | 75V                                                       | A 23   |
|                                                                    | 110V                                                      | A 8    |
|                                                                    | 220V                                                      | A –    |
| IEC max current $I_e$ in DC1 with L/R = 1ms with 2 poles in series |                                                           |        |
|                                                                    | =24V                                                      | A 36   |
|                                                                    | 48V                                                       | A 34   |
|                                                                    | 75V                                                       | A 29   |
|                                                                    | 110V                                                      | A 32   |
|                                                                    | 220V                                                      | A 4    |
| IEC max current $I_e$ in DC1 with L/R = 1ms with 3 poles in series |                                                           |        |
|                                                                    | =24V                                                      | A 36   |
|                                                                    | 48V                                                       | A 34   |
|                                                                    | 75V                                                       | A 33   |
|                                                                    | 110V                                                      | A 34   |
|                                                                    | 220V                                                      | A 30   |
| IEC max current $I_e$ in DC1 with L/R = 1ms with 4 poles in series |                                                           |        |
|                                                                    | =24V                                                      | A 36   |
|                                                                    | 48V                                                       | A 34   |

|                                                                      |           |      |      |
|----------------------------------------------------------------------|-----------|------|------|
|                                                                      | 75V       | A    | 33   |
|                                                                      | 110V      | A    | 34   |
|                                                                      | 220V      | A    | 38   |
| IEC max current Ie in DC3-DC5 with L/R = 15ms with 1 poles in series |           |      |      |
|                                                                      | =24V      | A    | 24   |
|                                                                      | 48V       | A    | 20   |
|                                                                      | 75V       | A    | 17   |
|                                                                      | 110V      | A    | 2,5  |
|                                                                      | 220V      | A    | –    |
| IEC max current Ie in DC3-DC5 with L/R = 15ms with 2 poles in series |           |      |      |
|                                                                      | =24V      | A    | 28   |
|                                                                      | 48V       | A    | 25   |
|                                                                      | 75V       | A    | 22   |
|                                                                      | 110V      | A    | 18   |
|                                                                      | 220V      | A    | 3    |
| IEC max current Ie in DC3-DC5 with L/R = 15ms with 3 poles in series |           |      |      |
|                                                                      | =24V      | A    | 32   |
|                                                                      | 48V       | A    | 28   |
|                                                                      | 75V       | A    | 28   |
|                                                                      | 110V      | A    | 23   |
|                                                                      | 220V      | A    | 25   |
| IEC max current Ie in DC3-DC5 with L/R = 15ms with 4 poles in series |           |      |      |
|                                                                      | =24V      | A    | 32   |
|                                                                      | 48V       | A    | 28   |
|                                                                      | 75V       | A    | 28   |
|                                                                      | 110V      | A    | 23   |
|                                                                      | 220V      | A    | 15   |
| Short-time allowable current for 10s (IEC/EN60947-1)                 |           | A    | 320  |
| Protection fuse                                                      |           |      |      |
|                                                                      | gG (IEC)  | A    | 63   |
|                                                                      | aM (IEC)  | A    | 40   |
| Making capacity (RMS value)                                          |           | A    | 380  |
| Breaking capacity at voltage                                         |           |      |      |
|                                                                      | 440V      | A    | 304  |
|                                                                      | 500V      | A    | 240  |
|                                                                      | 690V      | A    | 192  |
| Resistance per pole (average value)                                  |           | m?   | 2    |
| Power dissipation per pole (average value)                           |           |      |      |
|                                                                      | Ith       | W    | 6    |
|                                                                      | AC3       | W    | 2.9  |
| Tightening torque for terminals                                      |           |      |      |
|                                                                      | min       | Nm   | 2.5  |
|                                                                      | max       | Nm   | 3    |
|                                                                      | min       | lbin | 1.8  |
|                                                                      | max       | lbin | 2.2  |
| Tightening torque for coil terminal                                  |           |      |      |
|                                                                      | min       | Nm   | 0.8  |
|                                                                      | max       | Nm   | 1    |
|                                                                      | min       | lbin | 0.8  |
|                                                                      | max       | lbin | 0.74 |
| Max number of wires simultaneously connectable                       |           | Nr.  | 2    |
| Conductor section                                                    |           |      |      |
|                                                                      | AWG/Kcmil |      |      |

|                                                     |                                 |                            |                 |                       |
|-----------------------------------------------------|---------------------------------|----------------------------|-----------------|-----------------------|
|                                                     |                                 | max                        | 6               |                       |
| Flexible w/o lug conductor section                  |                                 | min                        | mm <sup>2</sup> | 2.5                   |
|                                                     |                                 | max                        | mm <sup>2</sup> | 16                    |
| Flexible c/w lug conductor section                  |                                 | min                        | mm <sup>2</sup> | 1                     |
|                                                     |                                 | max                        | mm <sup>2</sup> | 10                    |
| Flexible with insulated spade lug conductor section |                                 | min                        | mm <sup>2</sup> | 1                     |
|                                                     |                                 | max                        | mm <sup>2</sup> | 10                    |
| Power terminal protection according to IEC/EN 60529 |                                 |                            |                 | IP20 when wired       |
| Mechanical features                                 |                                 |                            |                 |                       |
| Operating position                                  |                                 | normal allowable           |                 | Vertical plan ±30°    |
| Fixing                                              |                                 |                            |                 | Screw / DIN rail 35mm |
| Weight                                              |                                 |                            | g               | 508                   |
| Conductor section                                   |                                 |                            |                 |                       |
|                                                     | AWG/kcmil conductor section     |                            |                 |                       |
|                                                     |                                 | max                        |                 | 6                     |
| Operations                                          |                                 |                            |                 |                       |
| Mechanical life                                     |                                 |                            | cycles          | 20000000              |
| Electrical life                                     |                                 |                            | cycles          | 1400000               |
| Safety related data                                 |                                 |                            |                 |                       |
| Performance level B10d according to EN/ISO 13489-1  |                                 |                            |                 |                       |
|                                                     |                                 | rated load mechanical load | cycles          | 1400000               |
|                                                     |                                 |                            | cycles          | 20000000              |
| Mirror contacts according to IEC/EN 60947-4-1       |                                 |                            |                 | 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 |                            |                 |                       |
|                                                     | 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 holding            | VA              | 75                    |
|                                                     |                                 |                            | VA              | 9                     |
|                                                     | of 50/60Hz coil powered at 60Hz |                            |                 |                       |
|                                                     |                                 | in-rush holding            | VA              | 70                    |
|                                                     |                                 |                            | 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 | 5  |
| max | ms | 15 |

Closing NC

|     |    |    |
|-----|----|----|
| min | ms | 9  |
| max | ms | 20 |

Opening NC

|     |    |    |
|-----|----|----|
| min | ms | 9  |
| max | ms | 17 |

#### UL technical data

Full-load current (FLA) for three-phase AC motor

|         |   |    |
|---------|---|----|
| at 480V | A | 40 |
| at 600V | A | 32 |

Yielded mechanical performance

for single-phase AC motor

|          |    |     |
|----------|----|-----|
| 110/120V | HP | 3   |
| 230V     | HP | 7.5 |

for three-phase AC motor

|          |    |    |
|----------|----|----|
| 200/208V | HP | 10 |
| 220/230V | HP | 15 |
| 460/480V | HP | 30 |
| 575/600V | HP | 30 |

General USE

Contactor

|            |   |    |
|------------|---|----|
| AC current | A | 55 |
|------------|---|----|

Short-circuit protection fuse, 600V

High fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 100 |
| Fuse rating           | A  | 100 |
| Fuse class            |    | J   |

Standard fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 5   |
| Fuse rating           | A  | 150 |

#### Ambient conditions

Temperature

Operating temperature

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

Storage temperature

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

Max altitude

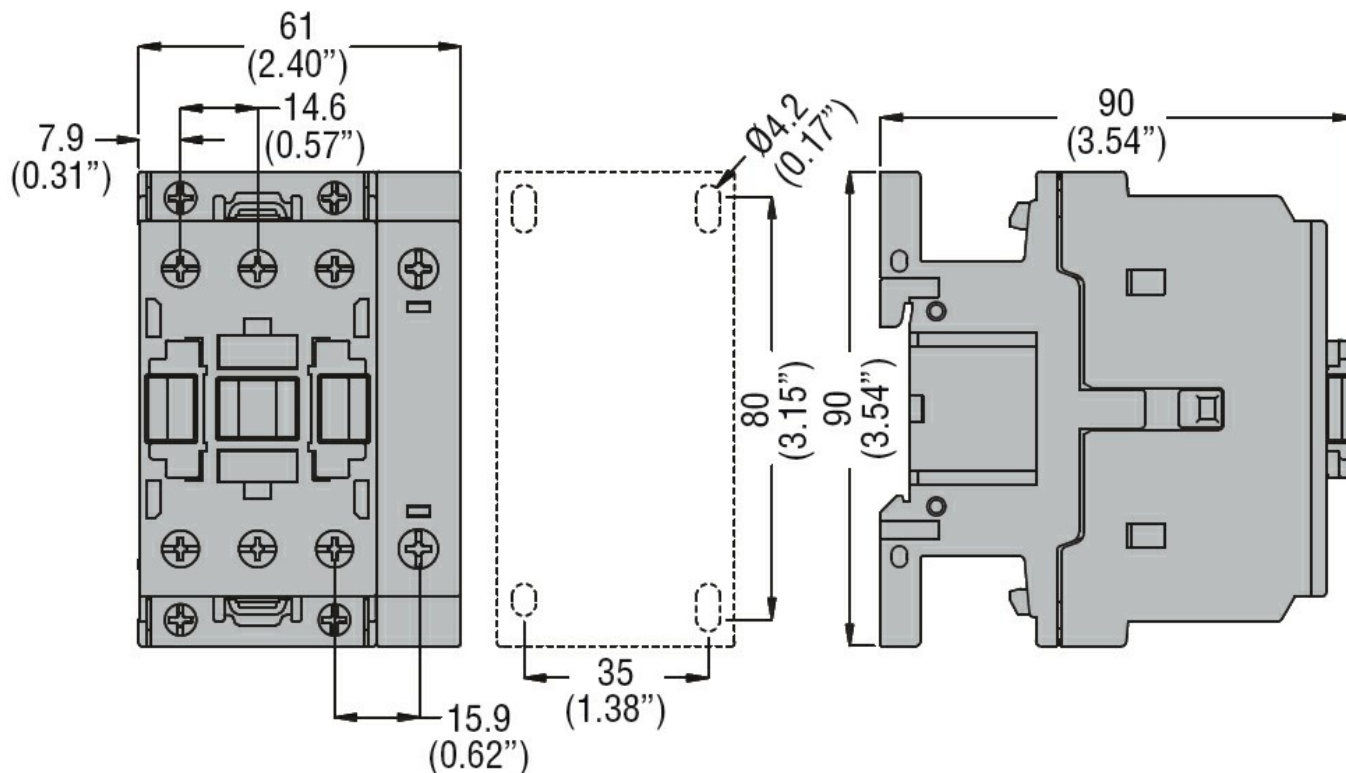
|   |      |
|---|------|
| m | 3000 |
|---|------|

## Resistance & Protection

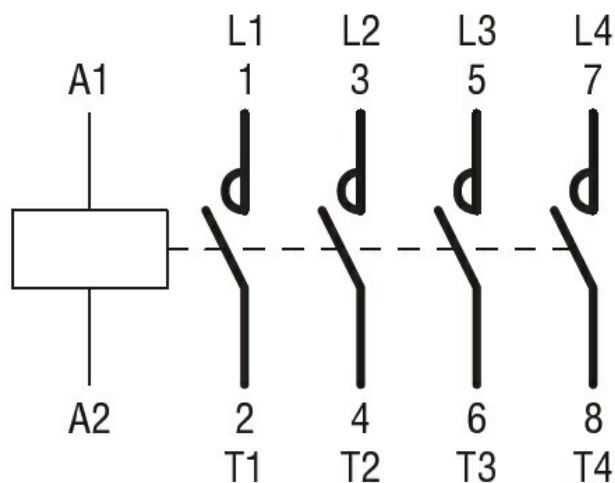
Pollution degree

3

## Dimensions



## Wiring diagrams



## Certifications and compliance

Compliance

CSA C22.2 n° 60947-1

CSA C22.2 n° 60947-4-1

IEC/EN 60947-1

IEC/EN 60947-4-1

UL 60947-1

UL 60947-4-1

Certificates

CCC

cULus

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EAC

ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching