



Product designation

Power contactor

Product type designation

BF38

**Contact characteristics**

|                                                                                |                                                                               |         |
|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------|
| Number of poles                                                                | Nr.                                                                           | 3       |
| 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 ( $\leq 40^\circ\text{C}$ )                                              | A 56    |
|                                                                                | AC-1 ( $\leq 40^\circ\text{C}$ ) with 16mm <sup>2</sup> wire and fork end lug | A 60    |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                                              | A 45    |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ ) with 16mm <sup>2</sup> wire and fork end lug | A 48    |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                                              | A 40    |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ ) with 16mm <sup>2</sup> wire and fork end lug | A 42    |
|                                                                                | AC-3 ( $\leq 440\text{V } \leq 55^\circ\text{C}$ )                            | A 38    |
|                                                                                | AC-4 (400V)                                                                   | A 15.5  |
| Rated operational power AC-3 ( $T \leq 55^\circ\text{C}$ )                     |                                                                               |         |
|                                                                                | 230V                                                                          | kW 11   |
|                                                                                | 400V                                                                          | kW 18.5 |
|                                                                                | 415V                                                                          | kW 18.5 |
|                                                                                | 440V                                                                          | kW 18.5 |
|                                                                                | 500V                                                                          | kW 20   |
|                                                                                | 690V                                                                          | kW 22   |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     |                                                                               |         |
|                                                                                | 230V                                                                          | kW 21   |
|                                                                                | 400V                                                                          | kW 36   |
|                                                                                | 500V                                                                          | kW 45   |
|                                                                                | 690V                                                                          | kW 62   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series |                                                                               |         |
|                                                                                | $\leq 24\text{V}$                                                             | A 35    |
|                                                                                | 48V                                                                           | A 30    |
|                                                                                | 75V                                                                           | A 23    |
|                                                                                | 110V                                                                          | A 8     |
|                                                                                | 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 36    |
|                                                                                | 48V                                                                           | A 34    |
|                                                                                | 75V                                                                           | A 29    |
|                                                                                | 110V                                                                          | A 32    |
|                                                                                | 220V                                                                          | A 4     |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series |                                                                               |         |
|                                                                                | $\leq 24\text{V}$                                                             | A 36    |

|                                                                      |          |      |     |
|----------------------------------------------------------------------|----------|------|-----|
|                                                                      | 48V      | A    | 34  |
|                                                                      | 75V      | A    | 33  |
|                                                                      | 110V     | A    | 34  |
|                                                                      | 220V     | A    | 30  |
| IEC max current Ie 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              | 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              |                  | 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          |
| <b>Mechanical features</b>                          |                  |                  |                          |
| Operating position                                  |                  |                  |                          |
|                                                     | normal allowable |                  | Vertical plan<br>±30°    |
| Fixing                                              |                  |                  | Screw / DIN rail<br>35mm |
| Weight                                              |                  | g                | 564                      |
| Conductor section                                   |                  |                  |                          |
| AWG/kcmil conductor section                         |                  |                  |                          |
|                                                     | max              |                  | 6                        |
| <b>Operations</b>                                   |                  |                  |                          |
| Mechanical life                                     |                  | cycles           | 20000000                 |
| Electrical life                                     |                  | cycles           | 1400000                  |
| <b>Safety related data</b>                          |                  |                  |                          |
| Performance level B10d according to EN/ISO 13489-1  |                  |                  |                          |
|                                                     | rated load       | cycles           | 1400000                  |
|                                                     | mechanical load  | cycles           | 20000000                 |
| Mirror contacts according to IEC/EN 60947-4-1       |                  |                  | yes                      |
| EMC compatibility                                   |                  |                  | yes                      |
| <b>DC coil operating</b>                            |                  |                  |                          |
| DC rated control voltage                            |                  | V                | 48                       |
| DC operating voltage                                |                  |                  |                          |
| pick-up                                             |                  |                  |                          |
|                                                     | min              | %U <sub>s</sub>  | 80                       |
|                                                     | max              | %U <sub>s</sub>  | 110                      |
| drop-out                                            |                  |                  |                          |
|                                                     | min              | %U <sub>s</sub>  | 10                       |
|                                                     | max              | %U <sub>s</sub>  | 40                       |
| Average coil consumption ≤20°C                      |                  |                  |                          |
|                                                     | in-rush          | W                | 2.4                      |
|                                                     | holding          | W                | 2.4                      |
| <b>Max cycles frequency</b>                         |                  |                  |                          |
| Mechanical operation                                |                  | cycles/h         | 3600                     |
| <b>Operating times</b>                              |                  |                  |                          |
| Average time for U <sub>s</sub> 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 |

in DC

|            |     |    |    |
|------------|-----|----|----|
| Closing NO | min | ms | 76 |
|            | max | ms | 92 |
| Opening NO | min | ms | 16 |
|            | max | ms | 20 |

#### 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

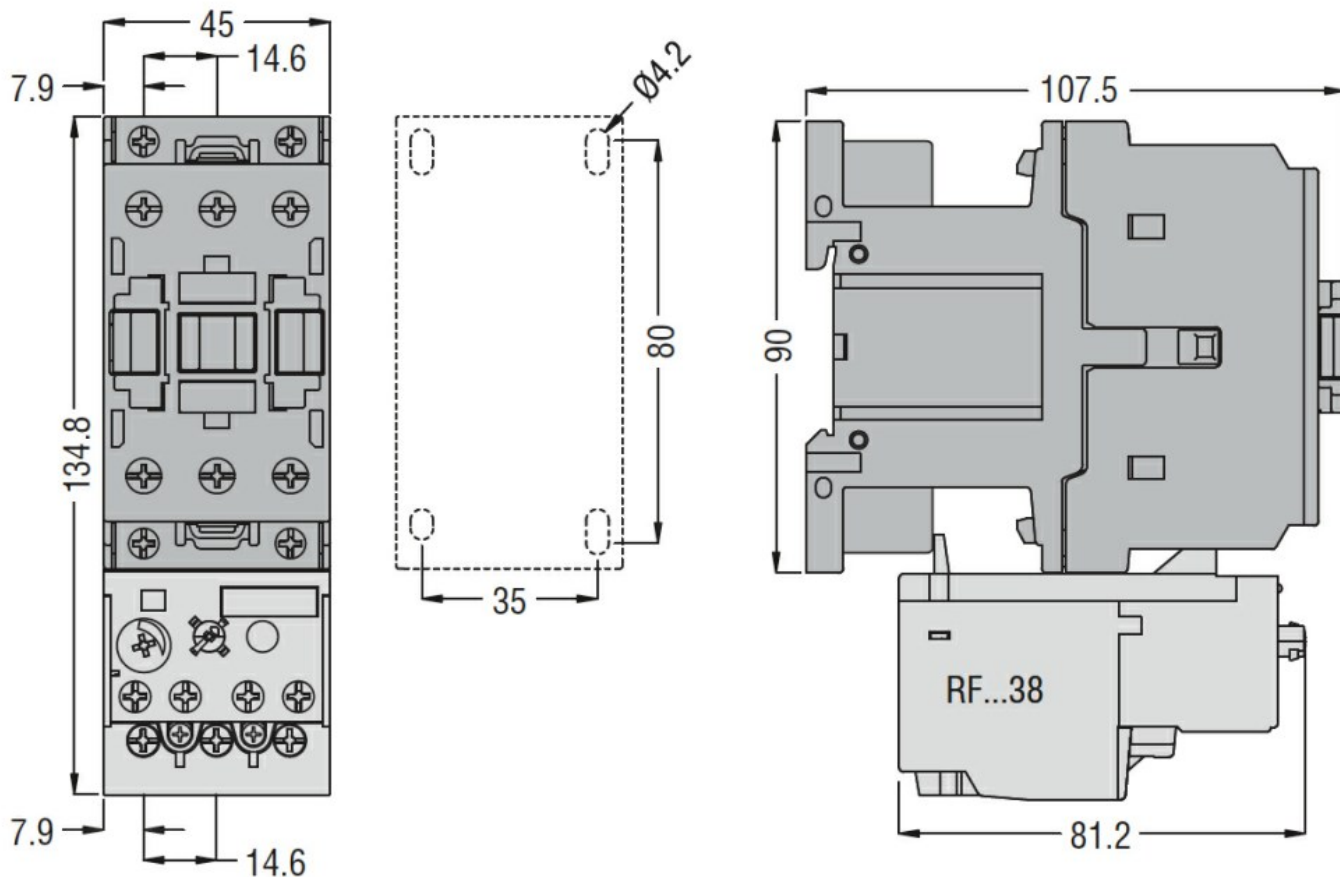
|   |      |
|---|------|
| m | 3000 |
|---|------|

#### Resistance & Protection

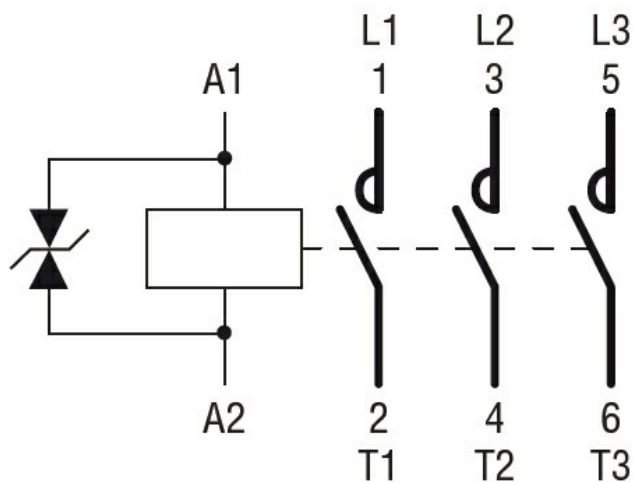
Pollution degree

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

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Certificates

CCC  
cULus  
EAC

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ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching