



Product designation

Power contactor

Product type designation

BGF09

**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                                                  | 20     |
| Operational current $I_e$                                                      | AC-1 ( $\leq 40^\circ\text{C}$ )                   | A 20   |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                   | A 18   |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                   | A 15   |
|                                                                                | AC-3 ( $\leq 440\text{V } \leq 55^\circ\text{C}$ ) | A 9    |
|                                                                                | AC-4 (400V)                                        | A 4    |
| Rated operational power AC-3 ( $T \leq 55^\circ\text{C}$ )                     | 230V                                               | kW 2.2 |
|                                                                                | 400V                                               | kW 4   |
|                                                                                | 415V                                               | kW 4.3 |
|                                                                                | 440V                                               | kW 4.5 |
|                                                                                | 500V                                               | kW 5   |
|                                                                                | 690V                                               | kW 5   |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V                                               | kW 8   |
|                                                                                | 400V                                               | kW 14  |
|                                                                                | 500V                                               | kW 16  |
|                                                                                | 690V                                               | kW 22  |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                  | A 12   |
|                                                                                | 48V                                                | A 10   |
|                                                                                | 75V                                                | A 4    |
|                                                                                | 110V                                               | A 3    |
|                                                                                | 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 15   |
|                                                                                | 48V                                                | A 14   |
|                                                                                | 75V                                                | A 9    |
|                                                                                | 110V                                               | A 8    |
|                                                                                | 220V                                               | A –    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$                                  | A 16   |
|                                                                                | 48V                                                | A 16   |
|                                                                                | 75V                                                | A 10   |
|                                                                                | 110V                                               | A 10   |

|                                                                      |          |      |      |
|----------------------------------------------------------------------|----------|------|------|
|                                                                      | 220V     | A    | 2    |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 4 poles in series      | ≤24V     | A    | 16   |
|                                                                      | 48V      | A    | 16   |
|                                                                      | 75V      | A    | 10   |
|                                                                      | 110V     | A    | 10   |
|                                                                      | 220V     | A    | 2    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series | ≤24V     | A    | 7    |
|                                                                      | 48V      | A    | 6    |
|                                                                      | 75V      | A    | 2    |
|                                                                      | 110V     | A    | 1    |
|                                                                      | 220V     | A    | –    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series | ≤24V     | A    | 8    |
|                                                                      | 48V      | A    | 8    |
|                                                                      | 75V      | A    | 5    |
|                                                                      | 110V     | A    | 4    |
|                                                                      | 220V     | A    | –    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series | ≤24V     | A    | 10   |
|                                                                      | 48V      | A    | 10   |
|                                                                      | 75V      | A    | 6    |
|                                                                      | 110V     | A    | 5    |
|                                                                      | 220V     | A    | 0,8  |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series | ≤24V     | A    | 10   |
|                                                                      | 48V      | A    | 10   |
|                                                                      | 75V      | A    | 6    |
|                                                                      | 110V     | A    | 5    |
|                                                                      | 220V     | A    | 0,8  |
| Short-time allowable current for 10s (IEC/EN60947-1)                 |          | A    | 96   |
| Protection fuse                                                      | gG (IEC) | A    | 20   |
|                                                                      | aM (IEC) | A    | 10   |
| Making capacity (RMS value)                                          |          | A    | 92   |
| Breaking capacity at voltage                                         | 440V     | A    | 72   |
|                                                                      | 500V     | A    | 72   |
|                                                                      | 690V     | A    | 72   |
| Resistance per pole (average value)                                  |          | mΩ   | 10   |
| Power dissipation per pole (average value)                           | Ith      | W    | 4    |
|                                                                      | AC-3     | W    | 0.81 |
| Tightening torque for terminals                                      | min      | Nm   | 0.8  |
|                                                                      | max      | Nm   | 1    |
|                                                                      | min      | Ibin | 9    |
|                                                                      | max      | Ibin | 9    |
| Tightening torque for coil terminal                                  | min      | Nm   | 0.8  |
|                                                                      | max      | Nm   | 1    |
|                                                                      | min      | Ibin | 9    |

|                                                     |                  |                  |                          |
|-----------------------------------------------------|------------------|------------------|--------------------------|
|                                                     | max              | I <sub>bin</sub> | 9                        |
| Max number of wires simultaneously connectable      |                  | Nr.              | 2                        |
| Conductor section                                   |                  |                  |                          |
| AWG/Kcmil                                           | max              |                  | 12                       |
| Flexible w/o lug conductor section                  | min              | mm <sup>2</sup>  | 0.75                     |
|                                                     | max              | mm <sup>2</sup>  | 2.5                      |
| Flexible c/w lug conductor section                  | min              | mm <sup>2</sup>  | 1.5                      |
|                                                     | max              | mm <sup>2</sup>  | 2.5                      |
| Flexible with insulated spade lug conductor section | min              | mm <sup>2</sup>  | 1.5                      |
|                                                     | max              | mm <sup>2</sup>  | 2.5                      |
| 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                | 211                      |
| <b>Auxiliary contact characteristics</b>            |                  |                  |                          |
| Thermal current I <sub>th</sub>                     |                  | A                | 10                       |
| IEC/EN 60947-5-1 designation                        |                  |                  | A600 - Q600              |
| Operating current AC15                              | 230V             | A                | 3                        |
|                                                     | 400V             | A                | 1.9                      |
|                                                     | 500V             | A                | 1.4                      |
| Operating current DC12                              | 110V             | A                | 2.9                      |
| Operating current DC13                              | 24V              | A                | 2.9                      |
|                                                     | 48V              | A                | 1.4                      |
|                                                     | 60V              | A                | 1.1                      |
|                                                     | 125V             | A                | 0.3                      |
|                                                     | 220V             | A                | 0.1                      |
|                                                     | 600V             | A                | 0.6                      |
| <b>Operations</b>                                   |                  |                  |                          |
| Mechanical life                                     |                  | cycles           | 20000000                 |
| Electrical life                                     |                  | cycles           | 500000                   |
| <b>Safety related data</b>                          |                  |                  |                          |
| Performance level B10d according to EN/ISO 13489-1  | rated load       | cycles           | 500000                   |
|                                                     | mechanical load  | cycles           | 20000000                 |
| EMC compatibility                                   |                  |                  | yes                      |
| <b>DC coil operating</b>                            |                  |                  |                          |
| DC rated control voltage                            |                  | V                | 48                       |
| DC operating voltage                                |                  |                  |                          |
| pick-up                                             | min              | %U <sub>s</sub>  | 75                       |
|                                                     | max              | %U <sub>s</sub>  | 115                      |

drop-out

|     |     |    |
|-----|-----|----|
| min | %Us | 10 |
| max | %Us | 25 |

Average coil consumption  $\leq 20^{\circ}\text{C}$

|         |   |     |
|---------|---|-----|
| in-rush | W | 3.2 |
| holding | W | 3.2 |

Max cycles frequency

Mechanical operation

cycles/h 3600

Operating times

Average time for Us control

in AC

Closing NO

|     |    |    |
|-----|----|----|
| min | ms | 12 |
| max | ms | 21 |

Opening NO

|     |    |    |
|-----|----|----|
| min | ms | 9  |
| max | ms | 18 |

Closing NC

|     |    |    |
|-----|----|----|
| min | ms | 17 |
| max | ms | 26 |

Opening NC

|     |    |    |
|-----|----|----|
| min | ms | 7  |
| max | ms | 17 |

in DC

Closing NO

|     |    |    |
|-----|----|----|
| min | ms | 18 |
| max | ms | 25 |

Opening NO

|     |    |   |
|-----|----|---|
| min | ms | 2 |
| max | ms | 3 |

Closing NC

|     |    |   |
|-----|----|---|
| min | ms | 3 |
| max | ms | 5 |

Opening NC

|     |    |    |
|-----|----|----|
| min | ms | 11 |
| max | ms | 17 |

UL technical data

Rated operational voltage AC (UL)

V 600

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

|         |   |     |
|---------|---|-----|
| at 480V | A | 7.6 |
| at 600V | A | 6.1 |

Yielded mechanical performance

for single-phase AC motor

|          |    |     |
|----------|----|-----|
| 110/120V | HP | 0.5 |
| 230V     | HP | 1.5 |

for three-phase AC motor

|          |    |   |
|----------|----|---|
| 200/208V | HP | 2 |
| 220/230V | HP | 3 |
| 460/480V | HP | 5 |
| 575/600V | HP | 5 |

General USE

Contactor

AC current A 20

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  | 30 |

Contact rating of auxiliary contacts according to UL

A600 - Q600

#### Ambient conditions

Temperature

Operating temperature

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

Storage temperature

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

Max altitude

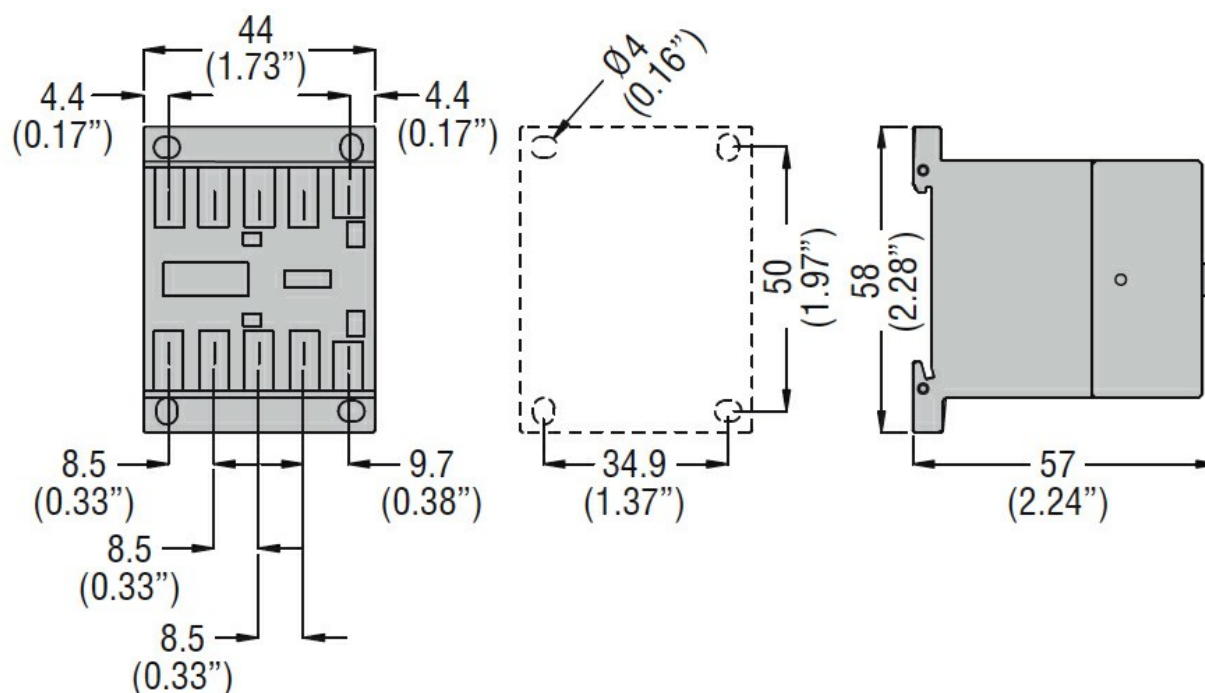
m 3000

#### Resistance & Protection

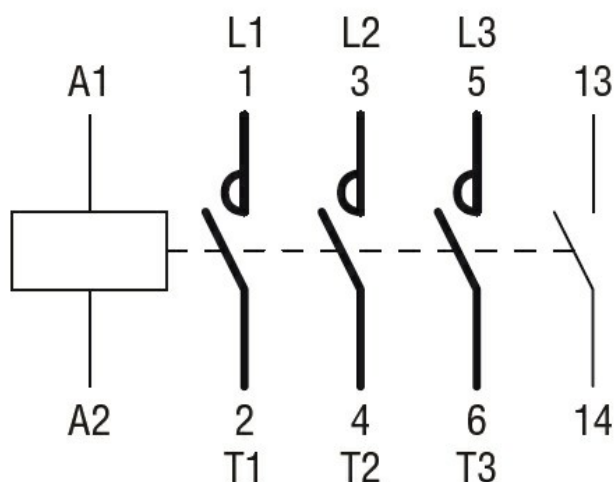
Pollution degree

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

EAC

## ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching