



Product designation

Power contactor

Product type designation

BF50

**Contact characteristics**

|                                                                                |                                                    |        |
|--------------------------------------------------------------------------------|----------------------------------------------------|--------|
| Number of poles                                                                | Nr.                                                | 4      |
| Rated insulation voltage $U_i$ IEC/EN                                          | V                                                  | 1000   |
| Rated impulse withstand voltage $U_{imp}$                                      | kV                                                 | 8      |
| Operational frequency                                                          | min                                                | Hz 25  |
|                                                                                | max                                                | Hz 400 |
| IEC Conventional free air thermal current $I_{th}$                             | A                                                  | 90     |
| Operational current $I_e$                                                      | AC-1 ( $\leq 40^\circ\text{C}$ )                   | A 90   |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                   | A 75   |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                   | A 65   |
|                                                                                | AC-3 ( $\leq 440\text{V } \leq 55^\circ\text{C}$ ) | A 50   |
|                                                                                | AC-4 (400V)                                        | A 28   |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V                                               | kW 34  |
|                                                                                | 400V                                               | kW 59  |
|                                                                                | 500V                                               | kW 74  |
|                                                                                | 690V                                               | kW 102 |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                  | A 45   |
|                                                                                | 48V                                                | A 40   |
|                                                                                | 75V                                                | A 40   |
|                                                                                | 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 60   |
|                                                                                | 48V                                                | A 60   |
|                                                                                | 75V                                                | A 60   |
|                                                                                | 110V                                               | A 50   |
|                                                                                | 220V                                               | A 7    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$                                  | A 60   |
|                                                                                | 48V                                                | A 60   |
|                                                                                | 75V                                                | A 60   |
|                                                                                | 110V                                               | A 55   |
|                                                                                | 220V                                               | A 75   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 4 poles in series | $\leq 24\text{V}$                                  | A 60   |
|                                                                                | 48V                                                | A 60   |
|                                                                                | 75V                                                | A 60   |
|                                                                                | 110V                                               | A 60   |
|                                                                                | 220V                                               | A 90   |

|                                                                      |          |                 |      |
|----------------------------------------------------------------------|----------|-----------------|------|
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series |          |                 |      |
| ≤24V                                                                 | A        | 30              |      |
| 48V                                                                  | A        | 25              |      |
| 75V                                                                  | A        | 22              |      |
| 110V                                                                 | A        | 3               |      |
| 220V                                                                 | A        | –               |      |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series |          |                 |      |
| ≤24V                                                                 | A        | 35              |      |
| 48V                                                                  | A        | 35              |      |
| 75V                                                                  | A        | 30              |      |
| 110V                                                                 | A        | 25              |      |
| 220V                                                                 | A        | 5               |      |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series |          |                 |      |
| ≤24V                                                                 | A        | 50              |      |
| 48V                                                                  | A        | 50              |      |
| 75V                                                                  | A        | 45              |      |
| 110V                                                                 | A        | 30              |      |
| 220V                                                                 | A        | 40              |      |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series |          |                 |      |
| ≤24V                                                                 | A        | 55              |      |
| 48V                                                                  | A        | 55              |      |
| 75V                                                                  | A        | 55              |      |
| 110V                                                                 | A        | 45              |      |
| 220V                                                                 | A        | 50              |      |
| Short-time allowable current for 10s (IEC/EN60947-1)                 |          | A               | 400  |
| Protection fuse                                                      |          |                 |      |
|                                                                      | gG (IEC) | A               | 100  |
|                                                                      | aM (IEC) | A               | 50   |
| Making capacity (RMS value)                                          |          | A               | 500  |
| Breaking capacity at voltage                                         |          |                 |      |
|                                                                      | 440V     | A               | 400  |
|                                                                      | 500V     | A               | 352  |
|                                                                      | 690V     | A               | 312  |
| Resistance per pole (average value)                                  |          | m?              | 0.8  |
| Power dissipation per pole (average value)                           |          |                 |      |
|                                                                      | Ith      | W               | 6.5  |
|                                                                      | AC3      | W               | 2    |
| Tightening torque for terminals                                      |          |                 |      |
|                                                                      | min      | Nm              | 4    |
|                                                                      | max      | Nm              | 5    |
|                                                                      | min      | lbin            | 2.95 |
|                                                                      | max      | lbin            | 3.69 |
| 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      |                 | 2    |
| Flexible w/o lug conductor section                                   |          |                 |      |
|                                                                      | min      | mm <sup>2</sup> | 1.5  |

|                                                     |  |                              |                    |                       |
|-----------------------------------------------------|--|------------------------------|--------------------|-----------------------|
|                                                     |  | max                          | mm²                | 35                    |
| Flexible c/w lug conductor section                  |  | min                          | mm²                | 1.5                   |
|                                                     |  | max                          | mm²                | 35                    |
| Power terminal protection according to IEC/EN 60529 |  |                              |                    | IP20 front            |
| Mechanical features                                 |  |                              |                    |                       |
| Operating position                                  |  | normal allowable             | Vertical plan ±30° |                       |
| Fixing                                              |  |                              |                    | Screw / DIN rail 35mm |
| Weight                                              |  |                              | g                  | 1240                  |
| Conductor section                                   |  | AWG/kcmil conductor section  |                    |                       |
|                                                     |  | max                          | 2                  |                       |
| Operations                                          |  |                              |                    |                       |
| Mechanical life                                     |  |                              | cycles             | 15000000              |
| Electrical life                                     |  |                              | cycles             | 1400000               |
| Safety related data                                 |  |                              |                    |                       |
| Performance level B10d according to EN/ISO 13489-1  |  | rated load mechanical load   | cycles             | 1400000               |
|                                                     |  |                              | cycles             | 15000000              |
| Mirror contacts according to IEC/EN 60947-4-1       |  | yes                          |                    |                       |
| EMC compatibility                                   |  | yes                          |                    |                       |
| AC coil operating                                   |  |                              |                    |                       |
| Rated AC voltage at 60Hz                            |  |                              | V                  | 460                   |
| 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                 | 210                   |
|                                                     |  |                              | VA                 | 15                    |
| Dissipation at holding ≤20°C 50Hz                   |  |                              | W                  | 5                     |
| Max cycles frequency                                |  |                              |                    |                       |
| Mechanical operation                                |  |                              | cycles/h           | 3600                  |
| Operating times                                     |  |                              |                    |                       |
| Average time for Us control                         |  | in AC                        |                    |                       |
|                                                     |  | Closing NO                   |                    |                       |
|                                                     |  | min                          | ms                 | 12                    |
|                                                     |  | max                          | ms                 | 28                    |
|                                                     |  | Opening NO                   |                    |                       |
|                                                     |  | min                          | ms                 | 8                     |
|                                                     |  | max                          | ms                 | 22                    |
| in DC                                               |  | Closing NO                   |                    |                       |
|                                                     |  | min                          | ms                 | 40                    |
|                                                     |  | max                          | ms                 | 85                    |

Opening NO

|     |    |    |
|-----|----|----|
| min | ms | 20 |
| max | ms | 55 |

UL technical data

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

|         |   |    |
|---------|---|----|
| at 480V | A | 52 |
| at 600V | A | 41 |

Yielded mechanical performance

for single-phase AC motor

|          |    |    |
|----------|----|----|
| 110/120V | HP | 5  |
| 230V     | HP | 10 |

for three-phase AC motor

|          |    |    |
|----------|----|----|
| 200/208V | HP | 15 |
| 220/230V | HP | 20 |
| 460/480V | HP | 40 |
| 575/600V | HP | 40 |

General USE

Contactor

|            |   |    |
|------------|---|----|
| AC current | A | 90 |
|------------|---|----|

Short-circuit protection fuse, 600V

High fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 100 |
| Fuse rating           | A  | 150 |
| Fuse class            |    | J   |

Standard fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 5   |
| Fuse rating           | A  | 150 |
| Fuse class            |    | RK5 |

Ambient conditions

Temperature

Operating temperature

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

Storage temperature

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

Max altitude

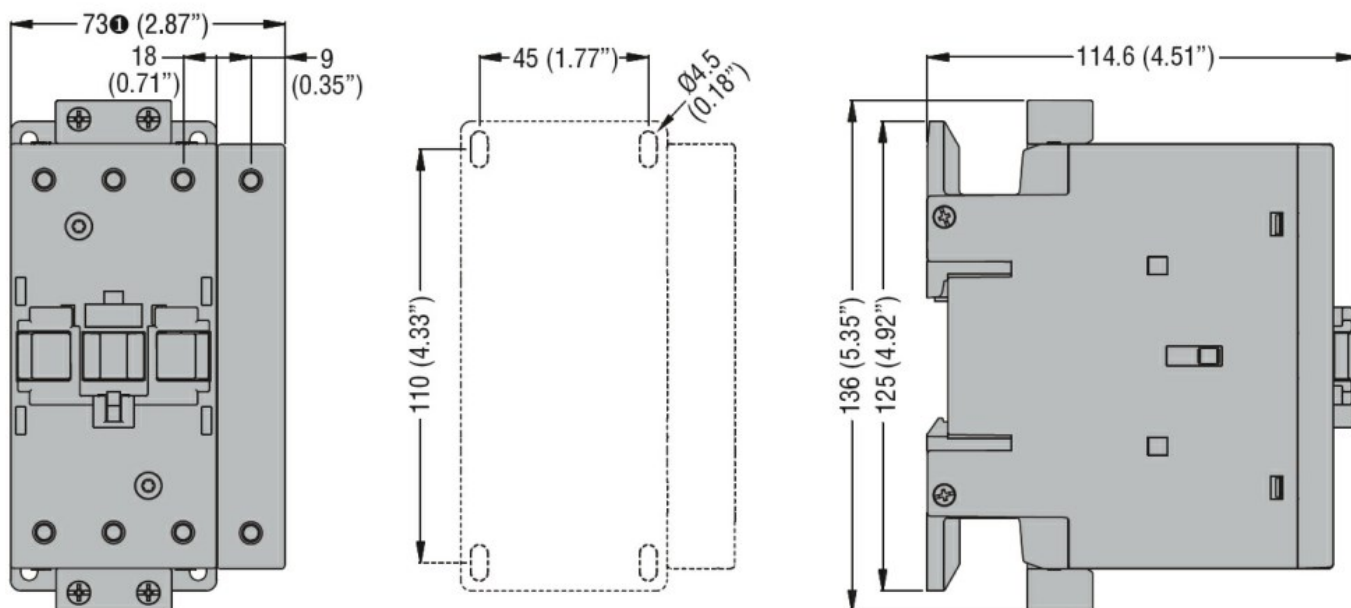
|   |      |
|---|------|
| m | 3000 |
|---|------|

Resistance & Protection

Pollution degree

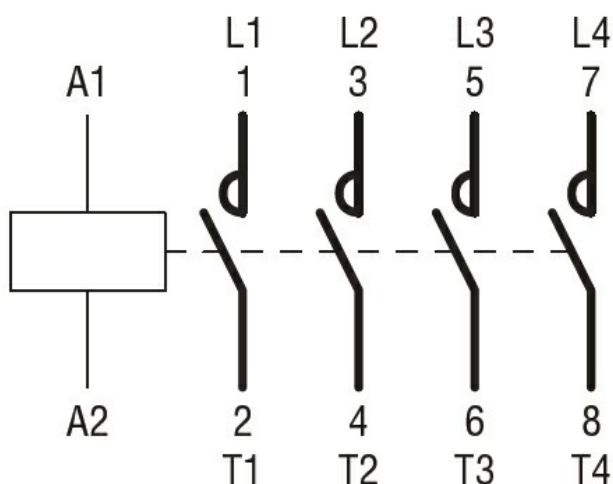
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Dimensions



① BF80T2 82mm/3.23"

#### 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

#### ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching