



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 contats according to IEC/EN 609474-4-1       |                                    |                                 |          | yes                   |
| EMC compatibility                                   |                                    |                                 |          | yes                   |
| AC coil operating                                   |                                    |                                 |          |                       |
| Rated AC voltage at 50/60Hz                         |                                    |                                 | V        | 400                   |
| AC operating voltage                                |                                    | of 50/60Hz coil powered at 50Hz |          |                       |
|                                                     |                                    |                                 |          |                       |
|                                                     |                                    | min                             | %Us      | 80                    |
|                                                     |                                    | max                             | %Us      | 110                   |
|                                                     | drop-out                           |                                 |          |                       |
|                                                     |                                    | min                             | %Us      | 20                    |
|                                                     |                                    | max                             | %Us      | 55                    |
| of 50/60Hz coil powered at 60Hz                     |                                    |                                 |          |                       |
|                                                     |                                    | min                             | %Us      | 85                    |
|                                                     |                                    | max                             | %Us      | 110                   |
|                                                     | drop-out                           |                                 |          |                       |
|                                                     |                                    | min                             | %Us      | 40                    |
|                                                     |                                    | max                             | %Us      | 55                    |
| AC average coil consumption at 20°C                 |                                    |                                 |          |                       |
| of 50/60Hz coil powered at 50Hz                     |                                    |                                 |          |                       |
|                                                     |                                    | in-rush                         | VA       | 210                   |
|                                                     |                                    | holding                         | VA       | 15                    |
| of 50/60Hz coil powered at 60Hz                     |                                    |                                 |          |                       |
|                                                     |                                    | in-rush                         | VA       | 195                   |
|                                                     |                                    | holding                         | VA       | 13                    |
| of 60Hz coil powered at 60Hz                        |                                    |                                 |          |                       |
|                                                     |                                    | in-rush                         | VA       | 210                   |
|                                                     |                                    | holding                         | 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

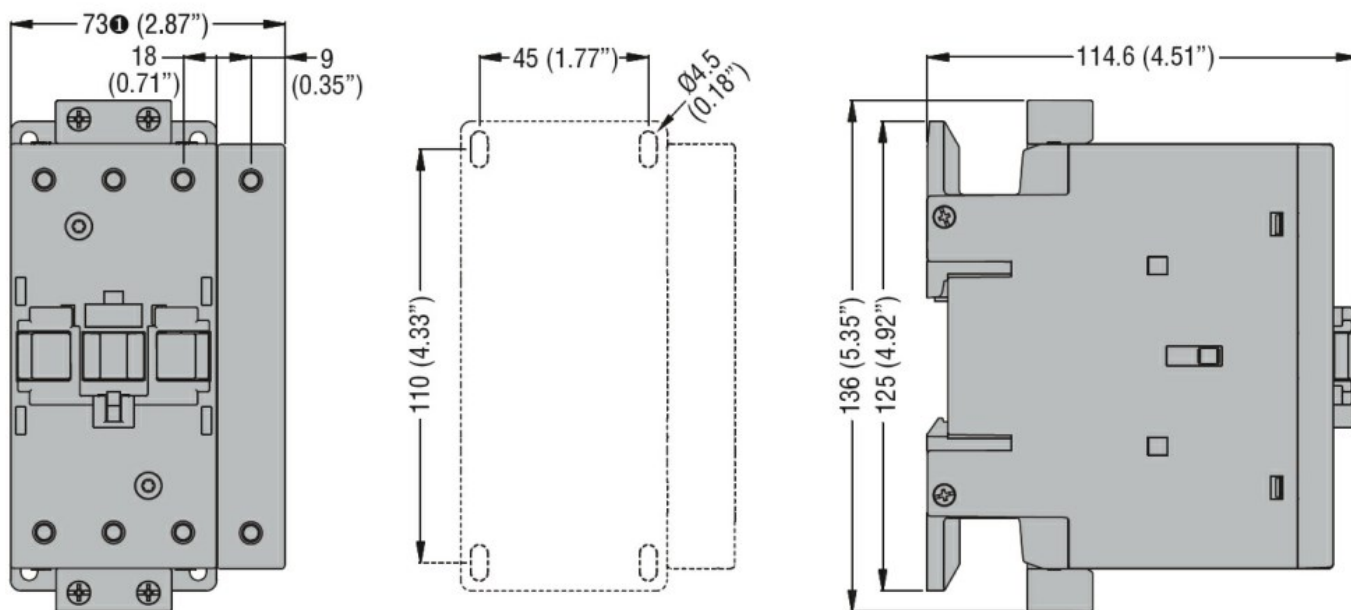
|   |      |
|---|------|
| m | 3000 |
|---|------|

## Resistance & Protection

Pollution degree

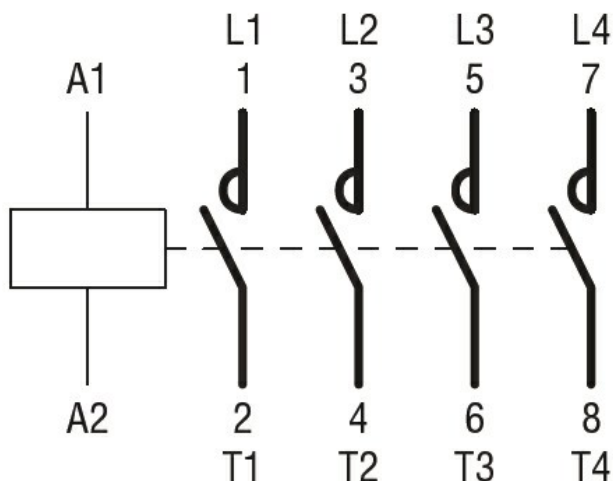
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## Dimensions



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