



Product designation

Power contactor

Product type designation

BF80

**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                                                  | 115    |
| Operational current $I_e$                                                      | AC-1 ( $\leq 40^\circ\text{C}$ )                   | A 115  |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                   | A 95   |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                   | A 80   |
|                                                                                | AC-3 ( $\leq 440\text{V } \leq 55^\circ\text{C}$ ) | A 80   |
|                                                                                | AC-4 (400V)                                        | A 38   |
| Rated operational current AC-3 ( $T \leq 55^\circ\text{C}$ )                   | 230V                                               | A 80   |
|                                                                                | 400V                                               | A 80   |
|                                                                                | 415V                                               | A 80   |
|                                                                                | 440V                                               | A 80   |
|                                                                                | 500V                                               | A 78   |
|                                                                                | 690V                                               | A 57   |
|                                                                                | 1000V                                              | A 28   |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V                                               | kW 43  |
|                                                                                | 400V                                               | kW 76  |
|                                                                                | 500V                                               | kW 95  |
|                                                                                | 690V                                               | kW 120 |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                  | A 70   |
|                                                                                | 48V                                                | A 60   |
|                                                                                | 75V                                                | A 60   |
|                                                                                | 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 100  |
|                                                                                | 48V                                                | A 100  |
|                                                                                | 75V                                                | A 100  |
|                                                                                | 110V                                               | A 80   |
|                                                                                | 220V                                               | A 9    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$                                  | A 100  |
|                                                                                | 48V                                                | A 100  |
|                                                                                | 75V                                                | A 100  |

|                                                                      |          |      |      |
|----------------------------------------------------------------------|----------|------|------|
|                                                                      | 110V     | A    | 85   |
|                                                                      | 220V     | A    | 95   |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 4 poles in series      |          |      |      |
|                                                                      | ≤24V     | A    | 100  |
|                                                                      | 48V      | A    | 100  |
|                                                                      | 75V      | A    | 100  |
|                                                                      | 110V     | A    | 100  |
|                                                                      | 220V     | A    | 115  |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 40   |
|                                                                      | 48V      | A    | 30   |
|                                                                      | 75V      | A    | 30   |
|                                                                      | 110V     | A    | 3    |
|                                                                      | 220V     | A    | –    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 60   |
|                                                                      | 48V      | A    | 50   |
|                                                                      | 75V      | A    | 50   |
|                                                                      | 110V     | A    | 40   |
|                                                                      | 220V     | A    | 5    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 80   |
|                                                                      | 48V      | A    | 70   |
|                                                                      | 75V      | A    | 70   |
|                                                                      | 110V     | A    | 60   |
|                                                                      | 220V     | A    | 64   |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 90   |
|                                                                      | 48V      | A    | 90   |
|                                                                      | 75V      | A    | 90   |
|                                                                      | 110V     | A    | 75   |
|                                                                      | 220V     | A    | 80   |
| Short-time allowable current for 10s (IEC/EN60947-1)                 |          | A    | 640  |
| Protection fuse                                                      |          |      |      |
|                                                                      | gG (IEC) | A    | 125  |
|                                                                      | aM (IEC) | A    | 80   |
| Making capacity (RMS value)                                          |          | A    | 800  |
| Breaking capacity at voltage                                         |          |      |      |
|                                                                      | 440V     | A    | 640  |
|                                                                      | 500V     | A    | 625  |
|                                                                      | 690V     | A    | 456  |
| Resistance per pole (average value)                                  |          | mΩ   | 0.6  |
| Power dissipation per pole (average value)                           |          |      |      |
|                                                                      | Ith      | W    | 7.9  |
|                                                                      | AC-3     | W    | 3.8  |
| Tightening torque for terminals                                      |          |      |      |
|                                                                      | min      | Nm   | 4    |
|                                                                      | max      | Nm   | 5    |
|                                                                      | min      | Ibin | 2.95 |
|                                                                      | max      | Ibin | 3.69 |
| 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                 |                  | 2                        |
| Flexible w/o lug conductor section                  |                     |                  |                          |
|                                                     | min                 | mm <sup>2</sup>  | 1.5                      |
|                                                     | max                 | mm <sup>2</sup>  | 35                       |
| Flexible c/w lug conductor section                  |                     |                  |                          |
|                                                     | min                 | mm <sup>2</sup>  | 1.5                      |
|                                                     | max                 | mm <sup>2</sup>  | 35                       |
| Power terminal protection according to IEC/EN 60529 |                     |                  | IP20 front               |
| <b>Mechanical features</b>                          |                     |                  |                          |
| Operating position                                  |                     |                  |                          |
|                                                     | normal<br>allowable |                  | Vertical plan<br>±30°    |
| Fixing                                              |                     |                  | Screw / DIN rail<br>35mm |
| Weight                                              |                     | g                | 1240                     |
| Conductor section                                   |                     |                  |                          |
| AWG/kcmil conductor section                         |                     |                  |                          |
|                                                     | max                 |                  | 2                        |
| <b>Operations</b>                                   |                     |                  |                          |
| Mechanical life                                     |                     | cycles           | 15000000                 |
| Electrical life                                     |                     | cycles           | 1300000                  |
| <b>Safety related data</b>                          |                     |                  |                          |
| Performance level B10d according to EN/ISO 13489-1  |                     |                  |                          |
|                                                     | rated load          | cycles           | 1300000                  |
|                                                     | mechanical load     | cycles           | 15000000                 |
| Mirror contacts according to IEC/EN 60947-4-1       |                     |                  | yes                      |
| EMC compatibility                                   |                     |                  | yes                      |
| <b>AC coil operating</b>                            |                     |                  |                          |
| Rated AC voltage at 50/60Hz                         |                     | V                | 230                      |
| AC operating voltage                                |                     |                  |                          |
| of 50/60Hz coil powered at 50Hz                     |                     |                  |                          |
| pick-up                                             | min                 | %U <sub>s</sub>  | 80                       |
|                                                     | max                 | %U <sub>s</sub>  | 110                      |
| drop-out                                            | min                 | %U <sub>s</sub>  | 20                       |
|                                                     | max                 | %U <sub>s</sub>  | 55                       |
| of 50/60Hz coil powered at 60Hz                     |                     |                  |                          |
| pick-up                                             | min                 | %U <sub>s</sub>  | 85                       |
|                                                     | max                 | %U <sub>s</sub>  | 110                      |
| drop-out                                            | min                 | %U <sub>s</sub>  | 40                       |
|                                                     | max                 | %U <sub>s</sub>  | 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  $\leq 20^{\circ}\text{C}$  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 | 77 |
| at 600V | A | 77 |

Yielded mechanical performance

for three-phase AC motor

|          |    |    |
|----------|----|----|
| 200/208V | HP | 25 |
| 220/230V | HP | 30 |
| 460/480V | HP | 60 |
| 575/600V | HP | 75 |

General USE

Contactor

|            |   |     |
|------------|---|-----|
| AC current | A | 115 |
|------------|---|-----|

Short-circuit protection fuse, 600V

High fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 100 |
| Fuse rating           | A  | 200 |
| Fuse class            |    | J   |

Standard fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 10  |
| Fuse rating           | A  | 200 |
| Fuse class            |    | RK5 |

Ambient conditions

Temperature

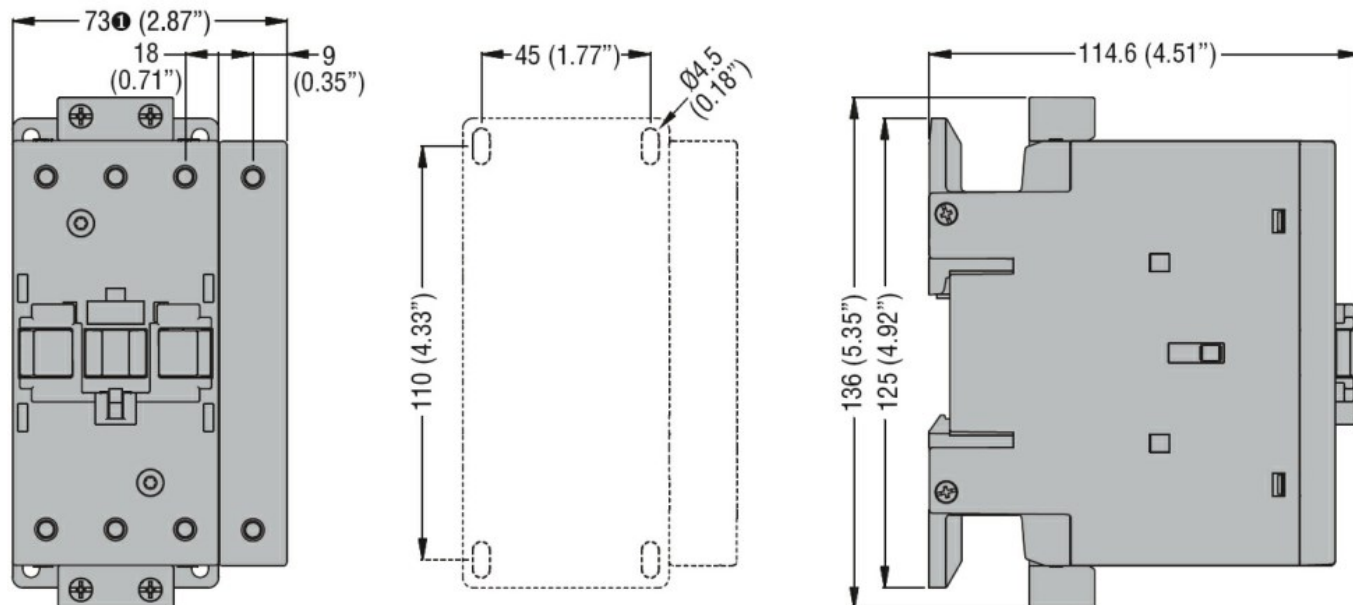
Operating temperature

|     |                    |     |
|-----|--------------------|-----|
| min | $^{\circ}\text{C}$ | -50 |
| max | $^{\circ}\text{C}$ | 70  |

Storage temperature

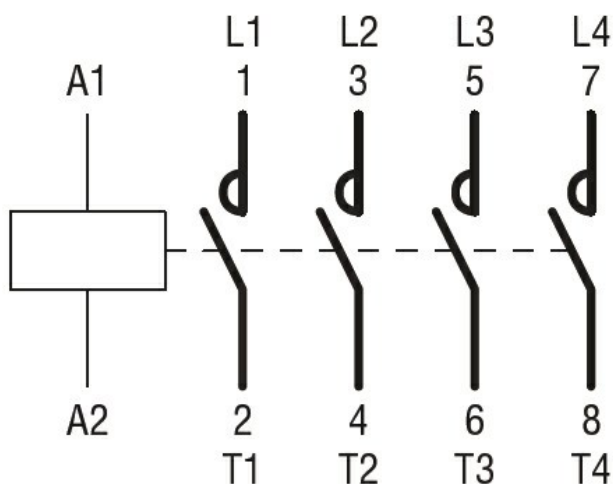
|     |                    |     |
|-----|--------------------|-----|
| min | $^{\circ}\text{C}$ | -60 |
|-----|--------------------|-----|

|                         |     |    |      |
|-------------------------|-----|----|------|
|                         | max | °C | 80   |
| Max altitude            |     | m  | 3000 |
| Resistance & Protection |     |    |      |
| Pollution degree        |     |    | 3    |
| 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/BS 60947-1  
IEC/EN/BS 60947-4-1  
UL 60947-1  
UL 60947-4-1

##### Certificates

CCC  
cULus

#### ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching