



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 allowable |                  | Vertical plan ±30°    |
| Fixing                                              |                              |                  |                  | Screw / DIN rail 35mm |
| Weight                                              |                              |                  | g                | 1240                  |
| <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              |
| EMC compatibility                                   |                              |                  |                  | yes                   |
| <b>AC coil operating</b>                            |                              |                  |                  |                       |
| Rated AC voltage at 60Hz                            |                              |                  | V                | 575                   |
| AC operating voltage                                | of 60Hz coil powered at 60Hz |                  |                  |                       |
|                                                     | 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                    |
| AC average coil consumption at 20°C                 | of 60Hz coil powered at 60Hz |                  |                  |                       |
|                                                     |                              | in-rush          | VA               | 210                   |
|                                                     |                              | holding          | VA               | 15                    |
| Dissipation at holding ≤20°C 50Hz                   |                              |                  | W                | 5                     |
| <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               | 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

|                                                  |   |     |
|--------------------------------------------------|---|-----|
| Rated operational voltage AC (UL)                | V | 600 |
| 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 |

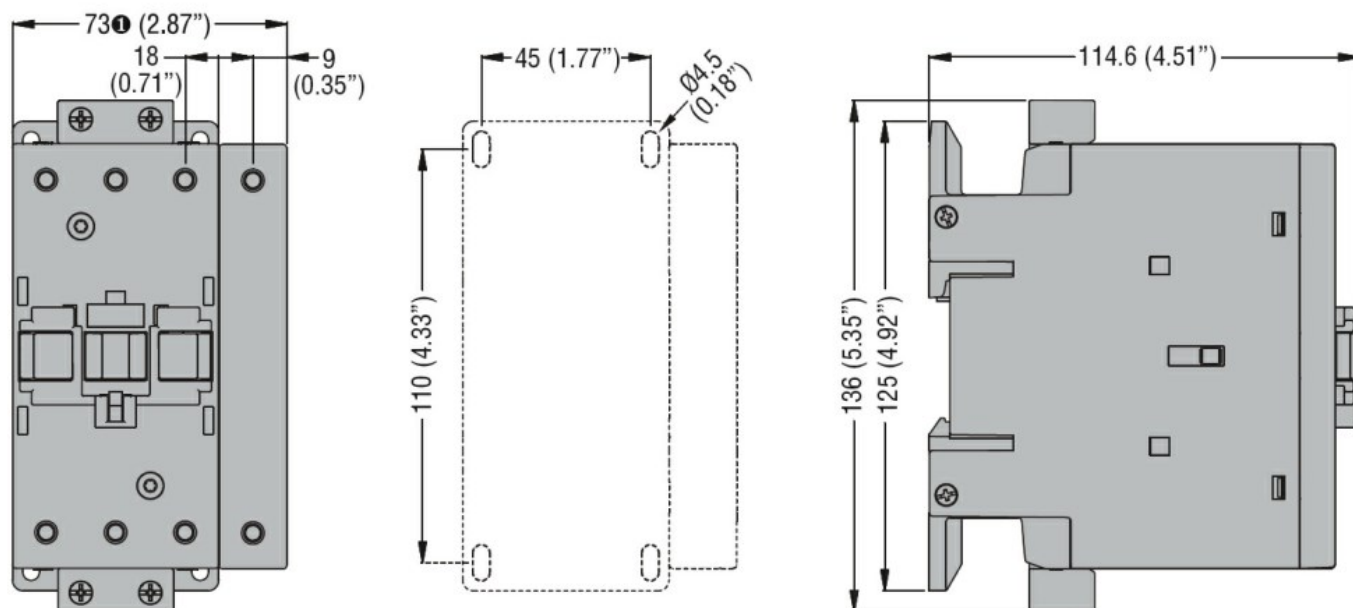
#### Ambient conditions

|                       |     |      |     |
|-----------------------|-----|------|-----|
| Temperature           |     |      |     |
| Operating temperature |     |      |     |
|                       | min | °C   | -50 |
|                       | max | °C   | 70  |
| Storage temperature   |     |      |     |
|                       | min | °C   | -60 |
|                       | max | °C   | 80  |
| Max altitude          | m   | 3000 |     |

#### Resistance & Protection

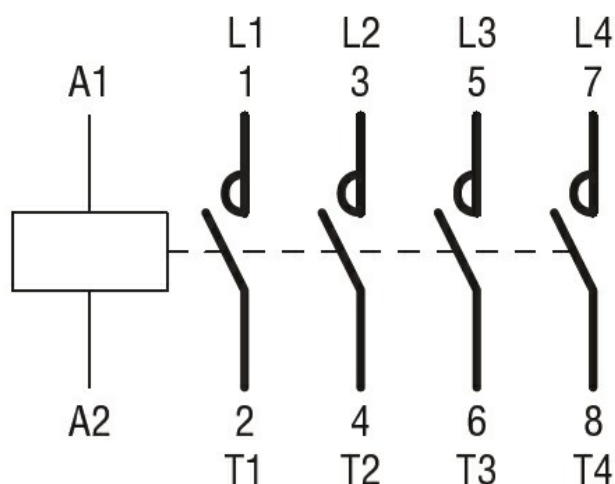
|                  |   |
|------------------|---|
| Pollution degree | 3 |
|------------------|---|

#### 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