



Product designation

Power contactor

Product type designation

BF80

**Contact characteristics**

|                                                                             |                    |        |
|-----------------------------------------------------------------------------|--------------------|--------|
| Number of poles                                                             | Nr.                | 3      |
| Rated insulation voltage U <sub>i</sub> IEC/EN                              | V                  | 1000   |
| Rated impulse withstand voltage U <sub>imp</sub>                            | kV                 | 8      |
| Operational frequency                                                       | min                | Hz 25  |
|                                                                             | max                | Hz 400 |
| IEC Conventional free air thermal current I <sub>th</sub>                   | A                  | 115    |
| Operational current I <sub>e</sub>                                          | AC-1 (≤40°C)       | A 115  |
|                                                                             | AC-1 (≤55°C)       | A 95   |
|                                                                             | AC-1 (≤70°C)       | A 80   |
|                                                                             | AC-3 (≤440V ≤55°C) | A 80   |
|                                                                             | AC-4 (400V)        | A 38   |
| Rated operational power AC-3 (T≤55°C)                                       | 230V               | kW 22  |
|                                                                             | 400V               | kW 45  |
|                                                                             | 415V               | kW 45  |
|                                                                             | 440V               | kW 45  |
|                                                                             | 500V               | kW 55  |
|                                                                             | 690V               | kW 55  |
|                                                                             | 1000V              | kW 37  |
| Rated operational current AC-3 (T≤55°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≤40°C)                                       | 230V               | kW 43  |
|                                                                             | 400V               | kW 76  |
|                                                                             | 500V               | kW 95  |
|                                                                             | 690V               | kW 120 |
| IEC max current I <sub>e</sub> in DC1 with L/R ≤ 1ms with 1 poles in series | ≤24V               | A 70   |
|                                                                             | 48V                | A 60   |
|                                                                             | 75V                | A 60   |
|                                                                             | 110V               | A 8    |
|                                                                             | 220V               | A —    |
| IEC max current I <sub>e</sub> in DC1 with L/R ≤ 1ms with 2 poles in series | ≤24V               | A 100  |

|                                                                      |          |    |     |
|----------------------------------------------------------------------|----------|----|-----|
|                                                                      | 48V      | A  | 100 |
|                                                                      | 75V      | A  | 100 |
|                                                                      | 110V     | A  | 80  |
|                                                                      | 220V     | A  | 9   |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 3 poles in series      |          |    |     |
|                                                                      | ≤24V     | 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              | Ibin            | 0.8                   |
|                                                     |                              | max              | Ibin            | 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            |
| Mechanical features                                 |                              |                  |                 |                       |
| Operating position                                  |                              |                  |                 |                       |
|                                                     |                              | normal allowable |                 | Vertical plan ±30°    |
| Fixing                                              |                              |                  |                 | Screw / DIN rail 35mm |
| Weight                                              |                              |                  | g               | 1020                  |
| Operations                                          |                              |                  |                 |                       |
| Mechanical life                                     |                              |                  | cycles          | 15000000              |
| Electrical life                                     |                              |                  | cycles          | 1300000               |
| Safety related data                                 |                              |                  |                 |                       |
| Performance level B10d according to EN/ISO 13489-1  |                              |                  |                 |                       |
|                                                     |                              | rated load       | cycles          | 1300000               |
|                                                     |                              | mechanical load  | cycles          | 15000000              |
| 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          | 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

|                                   |   |     |
|-----------------------------------|---|-----|
| 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

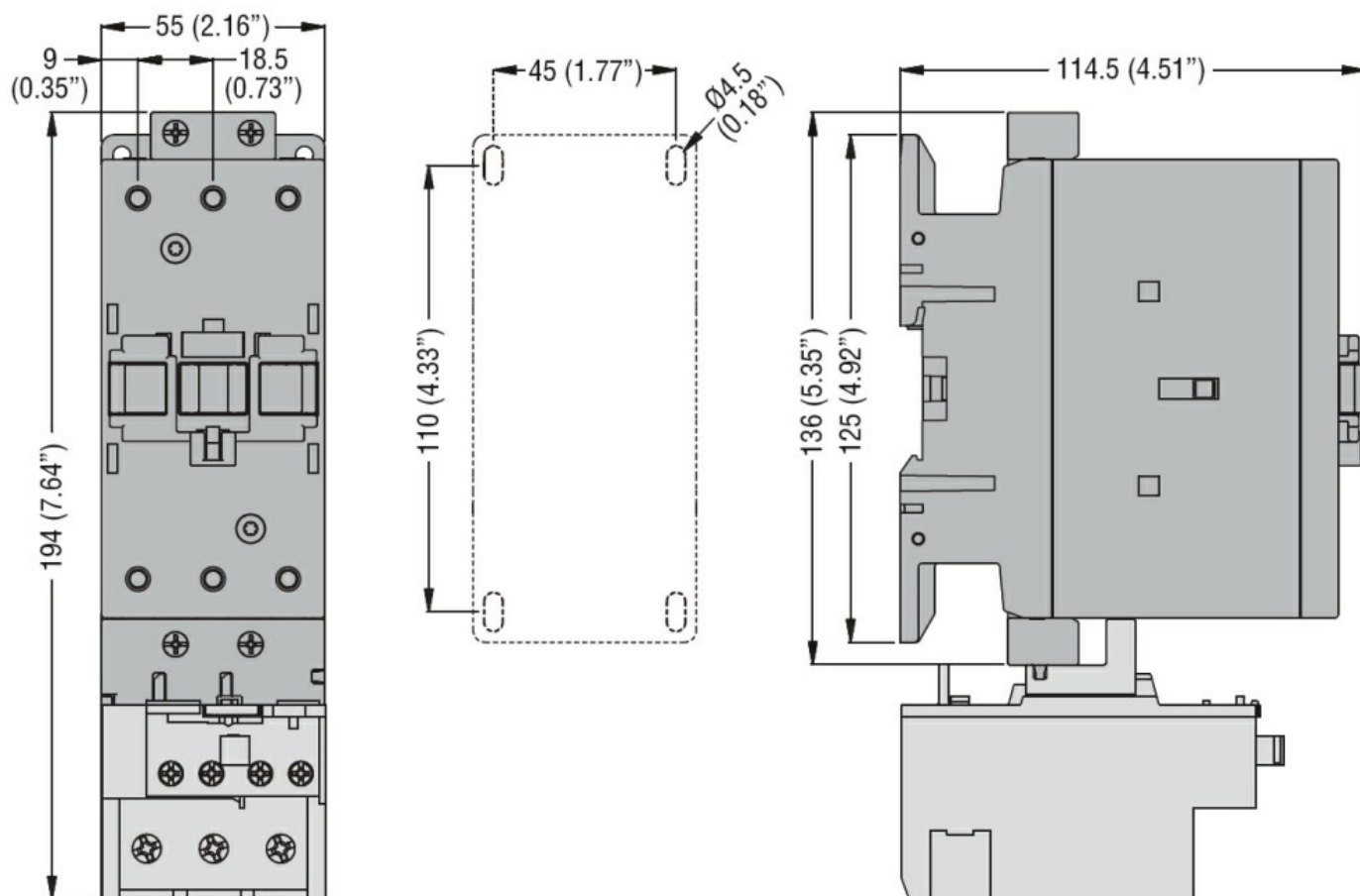
|     |    |     |
|-----|----|-----|
| min | °C | -60 |
| max | °C | 80  |

|              |   |      |
|--------------|---|------|
| Max altitude | m | 3000 |
|--------------|---|------|

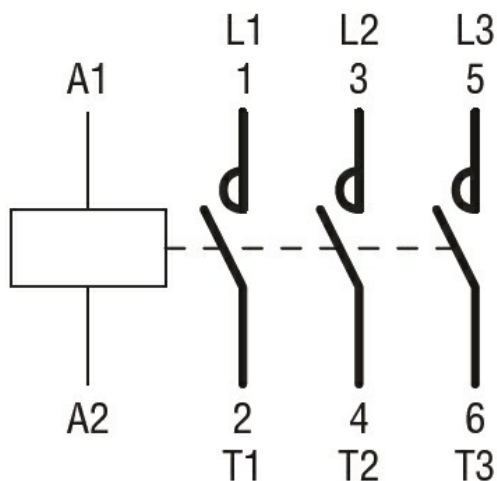
### Resistance & Protection

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

### Dimensions



## 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

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cULus

ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching