



Product designation

Power contactor

Product type designation

BF80

**Contact characteristics**

|                                                                                |                                                    |        |
|--------------------------------------------------------------------------------|----------------------------------------------------|--------|
| Number of poles                                                                | Nr.                                                | 3      |
| 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 power AC-3 ( $T \leq 55^\circ\text{C}$ )                     | 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 ( $T \leq 55^\circ\text{C}$ )                   | 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 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 50/60Hz                         |                                 |                  | V               | 24                    |
| AC operating voltage                                |                                 |                  |                 |                       |
|                                                     | of 50/60Hz coil powered at 50Hz |                  |                 |                       |
|                                                     | pick-up                         | min              | %Us             | 80                    |
|                                                     |                                 | max              | %Us             | 110                   |
|                                                     | drop-out                        | min              | %Us             | 20                    |
|                                                     |                                 | max              | %Us             | 55                    |
|                                                     | of 50/60Hz coil powered at 60Hz |                  |                 |                       |
|                                                     | pick-up                         | 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 |                  |                 |                       |

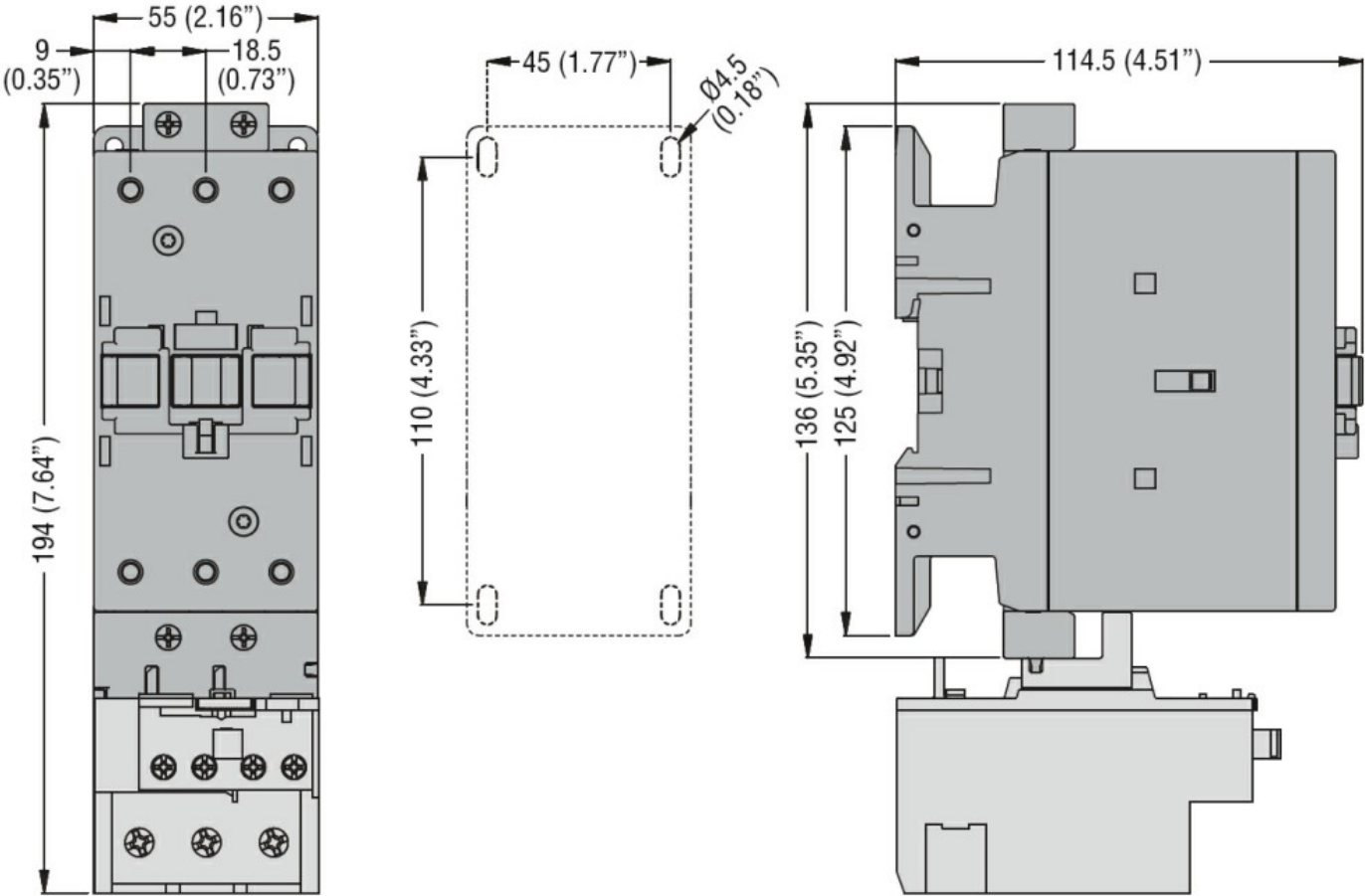
|                                                  |                       |                    |          |           |
|--------------------------------------------------|-----------------------|--------------------|----------|-----------|
|                                                  |                       | in-rush<br>holding | VA<br>VA | 210<br>15 |
| of 50/60Hz coil powered at 60Hz                  |                       |                    |          |           |
|                                                  |                       | in-rush<br>holding | VA<br>VA | 195<br>13 |
| of 60Hz coil powered at 60Hz                     |                       |                    |          |           |
|                                                  |                       | in-rush<br>holding | VA<br>VA | 210<br>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 |

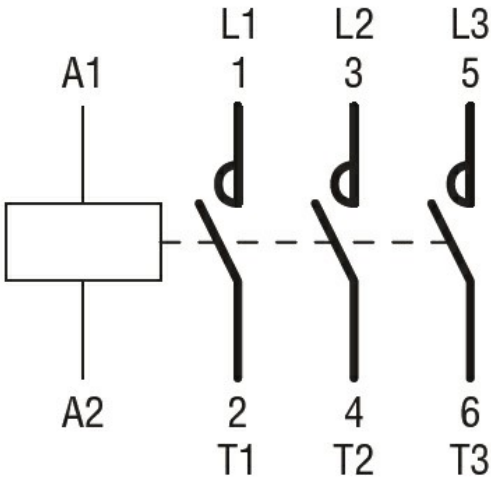
Resistance & Protection

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

cULus

ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching