



|   |                                      |      |     |
|---|--------------------------------------|------|-----|
| Product designation   | Power contactor                      |      |     |
| Product type designation  | BF80                                 |      |     |
| <b>Contact characteristics</b>  |                                      |      |     |
| 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 ( $\leq 40^\circ C$ )           | A    | 115 |
|   | AC-1 ( $\leq 55^\circ C$ )           | A    | 95  |
|   | AC-1 ( $\leq 70^\circ C$ )           | A    | 80  |
|   | AC-3 ( $\leq 440V \leq 55^\circ C$ ) | A    | 80  |
|   | AC-4 (400V)                          | A    | 38  |
| Rated operational current AC-3 ( $T \leq 55^\circ C$ )                  |                                      |      |     |
|   | 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 ( $T \leq 40^\circ C$ )                    |                                      |      |     |
|   | 230V                                 | kW   | 43  |
|   | 400V                                 | kW   | 76  |
|   | 500V                                 | kW   | 95  |
|   | 690V                                 | kW   | 120 |
| IEC max current $I_e$ in DC1 with $L/R \leq 1ms$ with 1 poles in series |                                      |      |     |
|   | $\leq 24V$                           | A    | 70  |
|   | 48V                                  | A    | 60  |
|   | 75V                                  | A    | 60  |
|   | 110V                                 | A    | 8   |
|   | 220V                                 | A    | —   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1ms$ with 2 poles in series |                                      |      |     |
|   | $\leq 24V$                           | A    | 100 |
|   | 48V                                  | A    | 100 |
|   | 75V                                  | A    | 100 |
|   | 110V                                 | A    | 80  |
|   | 220V                                 | A    | 9   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1ms$ with 3 poles in series |                                      |      |     |
|   | $\leq 24V$                           | A    | 100 |
|   | 48V                                  | A    | 100 |
|   | 75V                                  | A    | 100 |

|   |                   |                  |                      |
|---|-------------------|------------------|----------------------|
|   | 110V              | A                | 85                   |
|   | 220V              | A                | 95                   |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 4 poles in series      |                   |                  |                      |
|   | $\leq 24\text{V}$ | A                | 100                  |
|   | 48V               | A                | 100                  |
|   | 75V               | A                | 100                  |
|   | 110V              | A                | 100                  |
|   | 220V              | A                | 115                  |
| IEC max current $I_e$ in DC3-DC5 with $L/R \leq 15\text{ms}$ with 1 poles in series |                   |                  |                      |
|   | $\leq 24\text{V}$ | A                | 40                   |
|   | 48V               | A                | 30                   |
|   | 75V               | A                | 30                   |
|   | 110V              | A                | 3                    |
|   | 220V              | A                | —                    |
| IEC max current $I_e$ in DC3-DC5 with $L/R \leq 15\text{ms}$ with 2 poles in series |                   |                  |                      |
|   | $\leq 24\text{V}$ | A                | 60                   |
|   | 48V               | A                | 50                   |
|   | 75V               | A                | 50                   |
|   | 110V              | A                | 40                   |
|   | 220V              | A                | 5                    |
| IEC max current $I_e$ in DC3-DC5 with $L/R \leq 15\text{ms}$ with 3 poles in series |                   |                  |                      |
|   | $\leq 24\text{V}$ | A                | 80                   |
|   | 48V               | A                | 70                   |
|   | 75V               | A                | 70                   |
|   | 110V              | A                | 60                   |
|   | 220V              | A                | 64                   |
| IEC max current $I_e$ in DC3-DC5 with $L/R \leq 15\text{ms}$ with 4 poles in series |                   |                  |                      |
|   | $\leq 24\text{V}$ | 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)   |                   |                  | $\text{m}\Omega$ 0.6 |
| Power dissipation per pole (average value)  |                   |                  |                      |
|   | I <sub>th</sub>   | W                | 7.9                  |
|   | AC-3              | W                | 3.8                  |
| Tightening torque for terminals   |                   |                  |                      |
|   | min               | Nm               | 4                    |
|   | max               | Nm               | 5                    |
|   | min               | I <sub>bin</sub> | 2.95                 |
|   | max               | I <sub>bin</sub> | 3.69                 |
| Tightening torque for coil terminal   |                   |                  |                      |
|   | min               | Nm               | 0.8                  |
|   | max               | Nm               | 1                    |

|   |                          |                       |            |
|---|--------------------------|-----------------------|------------|
|   | min                      | Ibin                  | 0.59       |
|   | 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               |                       |            |
| <b>Mechanical features</b>                          |                          |                       |            |
| Operating position                                  | normal allowable         | Vertical plan<br>±30° |            |
| Fixing  | Screw / DIN rail<br>35mm |                       |            |
| Weight  | g                        | 1280                  |            |
| <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 50/60Hz, 60Hz                   | min                      | V                     | 60         |
|   | max                      | V                     | 110        |
| AC operating voltage                                |                          |                       |            |
| of 50/60Hz coil powered at 50Hz                     |                          |                       |            |
| pick-up   | min                      | %Us                   | 80 Us min  |
|   | max                      | %Us                   | 110 Us max |
| drop-out  | max                      | %Us                   | ≤70 Us min |
| of 50/60Hz coil powered at 60Hz                     |                          |                       |            |
| pick-up   | min                      | %Us                   | 80 Us min  |
|   | max                      | %Us                   | 110 Us max |
| drop-out  | max                      | %Us                   | ≤70 Us min |
| AC average coil consumption at 20°C                 |                          |                       |            |
| of 50/60Hz coil powered at 50Hz                     | in-rush                  | VA                    | 35...120   |
|   | holding                  | VA                    | 1.5...3.7  |
| of 50/60Hz coil powered at 60Hz                     | in-rush                  | VA                    | 35...120   |
|   | holding                  | VA                    | 1.5...3.7  |
| of 60Hz coil powered at 60Hz                        | in-rush                  | VA                    | 210        |

|   |                       |           |                  |
|---|-----------------------|-----------|------------------|
|   | holding               | VA        | 15               |
| Dissipation at holding $\leq 20^{\circ}\text{C}$ 50Hz |                       | W         | 1...2.5          |
| <b>DC coil operating</b>                              |                       |           |                  |
| DC rated control voltage                              |                       | min V     | 60               |
|   |                       | max V     | 110              |
| DC operating voltage                                  |                       |           |                  |
| pick-up   |                       | min %Us   | 80 Us min        |
|   |                       | max %Us   | 110 Us max       |
| drop-out  |                       | max %Us   | $\leq 70$ Us min |
| Average coil consumption $\leq 20^{\circ}\text{C}$    |                       | in-rush W | 23...68          |
|   |                       | holding W | 1.2...1.9        |
| <b>Max cycles frequency</b>                           |                       |           |                  |
| Mechanical operation                                  |                       | cycles/h  | 1500             |
| <b>Operating times</b>                                |                       |           |                  |
| Average time for Us control                           |                       |           |                  |
| in AC   |                       |           |                  |
| Closing NO  |                       | min ms    | 40               |
|   |                       | max ms    | 85               |
| Opening NO  |                       | min ms    | 20               |
|   |                       | max ms    | 55               |
| in DC   |                       |           |                  |
| Closing NO  |                       | min ms    | 40               |
|   |                       | max ms    | 85               |
| Opening NO  |                       | min ms    | 20               |
|   |                       | max ms    | 55               |
| <b>UL technical data</b>                              |                       |           |                  |
| 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 | -40 |
| max | °C | 70  |

##### Storage temperature

|     |    |     |
|-----|----|-----|
| min | °C | -50 |
| max | °C | 80  |

#### Max altitude

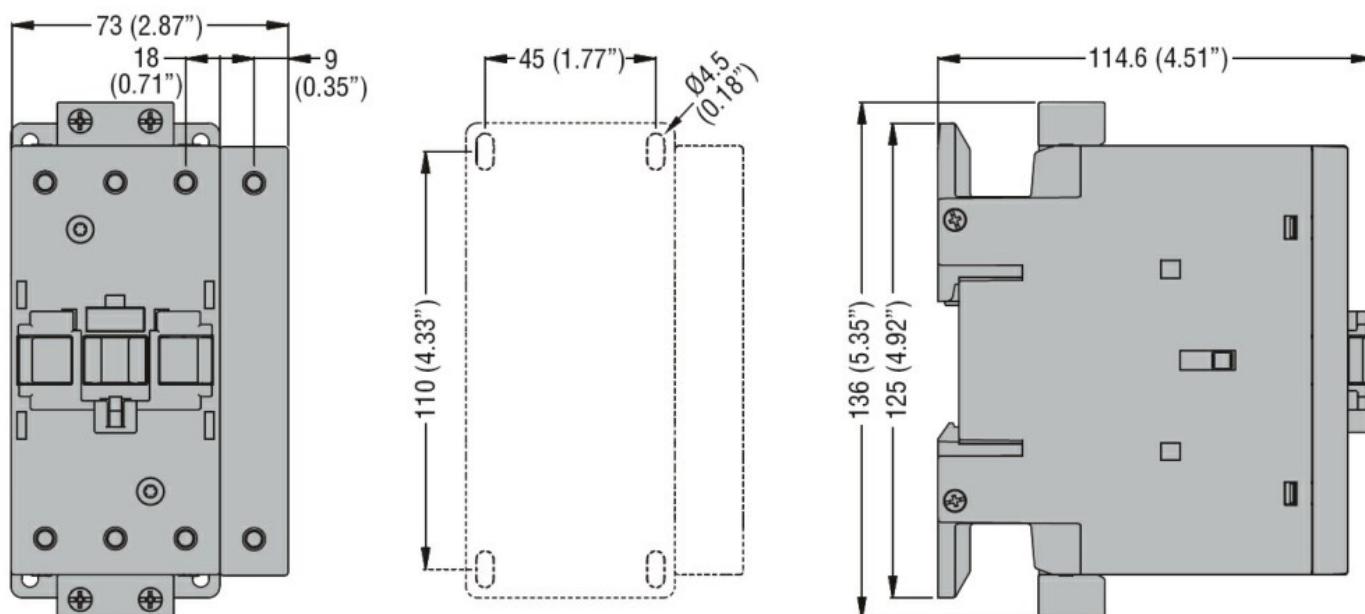
m 3000

#### Resistance & Protection

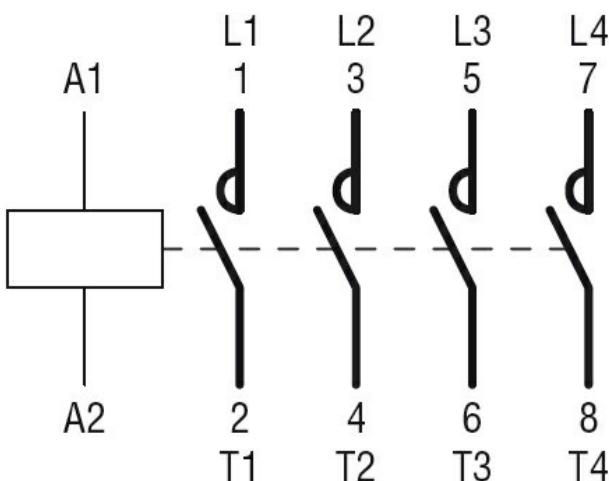
#### Pollution degree

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

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IEC/EN/BS 60947-4-1

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UL 60947-1

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UL 60947-4-1

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Certificates

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CCC

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cULus

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ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching