



### 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 $I_{th} \leq 40^\circ\text{C}$       | A                                                 | 90     |
| Operational current $I_e$                                                      |                                                   |        |
|                                                                                | AC-1 ( $\leq 40^\circ\text{C}$ )                  | A 90   |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                  | A 75   |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                  | A 65   |
|                                                                                | AC-3 ( $\leq 440\text{V} \leq 55^\circ\text{C}$ ) | A 50   |
|                                                                                | AC-4 (400V)                                       | A 28   |
| Rated operational current AC-3 ( $T \leq 55^\circ\text{C}$ )                   |                                                   |        |
|                                                                                | 230V                                              | A 50   |
|                                                                                | 400V                                              | A 50   |
|                                                                                | 415V                                              | A 50   |
|                                                                                | 440V                                              | A 50   |
|                                                                                | 500V                                              | A 44   |
|                                                                                | 690V                                              | A 39   |
|                                                                                | 1000V                                             | A 23   |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     |                                                   |        |
|                                                                                | 230V                                              | kW 34  |
|                                                                                | 400V                                              | kW 59  |
|                                                                                | 500V                                              | kW 74  |
|                                                                                | 690V                                              | kW 102 |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series |                                                   |        |
|                                                                                | $\leq 24\text{V}$                                 | A 45   |
|                                                                                | 48V                                               | A 40   |
|                                                                                | 75V                                               | A 40   |
|                                                                                | 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 60   |
|                                                                                | 48V                                               | A 60   |
|                                                                                | 75V                                               | A 60   |
|                                                                                | 110V                                              | A 50   |
|                                                                                | 220V                                              | A 7    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series |                                                   |        |
|                                                                                | $\leq 24\text{V}$                                 | A 60   |
|                                                                                | 48V                                               | A 60   |
|                                                                                | 75V                                               | A 60   |
|                                                                                | 110V                                              | A 55   |
|                                                                                | 220V                                              | A 75   |

IEC max current Ie in DC1 with L/R ≤ 1ms with 4 poles in series

|      |   |    |
|------|---|----|
| ≤24V | A | 60 |
| 48V  | A | 60 |
| 75V  | A | 60 |
| 110V | A | 60 |
| 220V | A | 90 |

IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series

|      |   |    |
|------|---|----|
| ≤24V | A | 30 |
| 48V  | A | 25 |
| 75V  | A | 22 |
| 110V | A | 3  |
| 220V | A | –  |

IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series

|      |   |    |
|------|---|----|
| ≤24V | A | 35 |
| 48V  | A | 35 |
| 75V  | A | 30 |
| 110V | A | 25 |
| 220V | A | 5  |

IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series

|      |   |    |
|------|---|----|
| ≤24V | A | 50 |
| 48V  | A | 50 |
| 75V  | A | 45 |
| 110V | A | 30 |
| 220V | A | 40 |

IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series

|      |   |    |
|------|---|----|
| ≤24V | A | 55 |
| 48V  | A | 55 |
| 75V  | A | 55 |
| 110V | A | 45 |
| 220V | A | 50 |

Short-time allowable current for 10s (IEC/EN60947-1)

|   |     |
|---|-----|
| A | 400 |
|---|-----|

Protection fuse

|          |   |     |
|----------|---|-----|
| gG (IEC) | A | 100 |
| aM (IEC) | A | 50  |

Making capacity (RMS value)

|   |     |
|---|-----|
| A | 500 |
|---|-----|

Breaking capacity at voltage

|      |   |     |
|------|---|-----|
| 440V | A | 400 |
| 500V | A | 352 |
| 690V | A | 312 |

Resistance per pole (average value)

|    |     |
|----|-----|
| mΩ | 0.8 |
|----|-----|

Power dissipation per pole (average value)

|      |   |     |
|------|---|-----|
| Ith  | W | 6.5 |
| AC-3 | W | 2   |

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        | mm²                        | 1.5                            |
|                                                     |  | max        | mm²                        | 35                             |
| Flexible c/w lug conductor section                  |  |            |                            |                                |
|                                                     |  | min        | mm²                        | 1.5                            |
|                                                     |  | max        | mm²                        | 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                          | 1240                           |
| Operations                                          |  |            |                            |                                |
| Mechanical life                                     |  |            | cycles                     | 15000000                       |
| Electrical life                                     |  |            | cycles                     | 1400000                        |
| Safety related data                                 |  |            |                            |                                |
| Performance level B10d according to EN/ISO 13489-1  |  |            |                            |                                |
|                                                     |  |            | rated load mechanical load | cycles 1400000 cycles 15000000 |
| EMC compatibility                                   |  |            |                            | yes                            |
| AC coil operating                                   |  |            |                            |                                |
| Rated AC voltage at 60Hz                            |  |            | V                          | 220                            |
| AC operating voltage                                |  |            |                            |                                |
| of 60Hz coil powered at 60Hz pick-up                |  |            | min max                    | %Us 80 %Us 110                 |
| drop-out                                            |  |            | min max                    | %Us 20 %Us 55                  |
| AC average coil consumption at 20°C                 |  |            |                            |                                |
| of 60Hz coil powered at 60Hz                        |  |            | in-rush holding            | VA 210 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 max    | ms ms                      | 12 28                          |
|                                                     |  | Opening NO |                            |                                |
|                                                     |  | min max    | ms ms                      | 8 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 | 52 |
| at 600V | A | 41 |

Yielded mechanical performance

for single-phase AC motor

|          |    |    |
|----------|----|----|
| 110/120V | HP | 5  |
| 230V     | HP | 10 |

for three-phase AC motor

|          |    |    |
|----------|----|----|
| 200/208V | HP | 15 |
| 220/240V | HP | 20 |
| 460/480V | HP | 40 |
| 575/600V | HP | 40 |

General USE

Contactor

|            |   |    |
|------------|---|----|
| AC current | A | 90 |
|------------|---|----|

Short-circuit protection fuse, 600V

High fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 100 |
| Fuse rating           | A  | 150 |
| Fuse class            |    | J   |

Standard fault

|                       |    |     |
|-----------------------|----|-----|
| Short circuit current | kA | 5   |
| Fuse rating           | A  | 150 |
| Fuse class            |    | RK5 |

#### Ambient conditions

Temperature

Operating temperature

|     |    |     |
|-----|----|-----|
| min | °C | -50 |
| max | °C | 70  |

Storage temperature

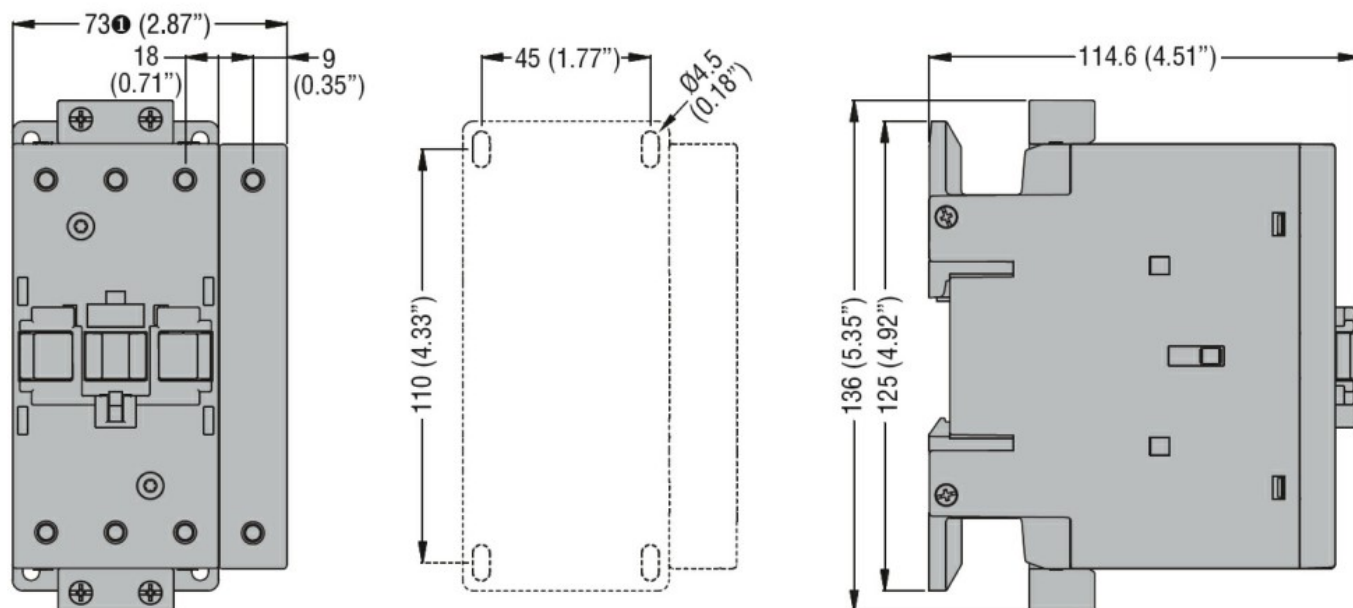
|     |    |     |
|-----|----|-----|
| min | °C | -60 |
| max | °C | 80  |

Max altitude m 3000

#### Resistance & Protection

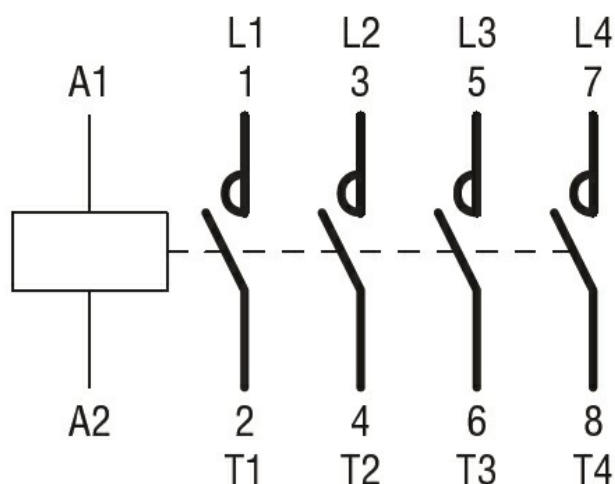
Pollution degree 3

#### 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 60335-2-89  
IEC/EN/BS 60947-1  
IEC/EN/BS 60947-4-1  
UL 60947-1  
UL 60947-4-1

##### Certificates

CCC  
CSA C22.2 n. 60335-2-40:22 LZGH A2L  
CSA C22.2 No. 60335-2-89:21 LZGH A2L  
cULus  
UL 60335-2-40 LZGH A2L  
UL 60335-2-89 LZGH A2L

ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching