



Product designation

Power contactor

Product type designation

BF94

**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 95  |
|  | AC-4 (400V)  | A 45  |
| Rated operational power AC-3 ( $T \leq 55^\circ\text{C}$ )                     | 230V kW  | 30    |
|  | 400V kW  | 55    |
|  | 415V kW  | 55    |
|  | 440V kW  | 55    |
|  | 500V kW  | 55    |
|  | 690V kW  | 55    |
|  | 1000V kW   | 37    |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$ A                                | 77    |
|  | 48V A  | 66    |
|  | 75V A  | 66    |
|  | 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                                | 110   |
|  | 48V A  | 110   |
|  | 75V A  | 110   |
|  | 110V A   | 90    |
|  | 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                                | 110   |
|  | 48V A  | 110   |
|  | 75V A  | 110   |
|  | 110V A   | 93    |
|  | 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                                | 115   |
|  | 48V A  | 115   |

|  |                                    |      |      |
|--|------------------------------------|------|------|
|  | 75V                                | A    | 115  |
|  | 110V                               | A    | 110  |
|  | 220V                               | A    | 115  |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series |                                    |      |      |
|  | ≤24V                               | A    | 45   |
|  | 48V                                | A    | 33   |
|  | 75V                                | A    | 33   |
|  | 110V                               | A    | 3    |
|  | 220V                               | A    | –    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series |                                    |      |      |
|  | ≤24V                               | A    | 65   |
|  | 48V                                | A    | 55   |
|  | 75V                                | A    | 55   |
|  | 110V                               | A    | 43   |
|  | 220V                               | A    | 5    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series |                                    |      |      |
|  | ≤24V                               | A    | 86   |
|  | 48V                                | A    | 75   |
|  | 75V                                | A    | 75   |
|  | 110V                               | A    | 64   |
|  | 220V                               | A    | 64   |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series |                                    |      |      |
|  | ≤24V                               | A    | 96   |
|  | 48V                                | A    | 95   |
|  | 75V                                | A    | 95   |
|  | 110V                               | A    | 80   |
|  | 220V                               | A    | 80   |
| Short-time allowable current for 10s (IEC/EN60947-1)                 |                                    | A    | 640  |
| Protection fuse  |                                    |      |      |
|  | gG (IEC)                           | A    | 125  |
|  | aM (IEC)                           | A    | 100  |
| Making capacity (RMS value)  |                                    | A    | 950  |
| Breaking capacity at voltage   |                                    |      |      |
|  | 440V                               | A    | 640  |
|  | 500V                               | A    | 625  |
|  | 690V                               | A    | 456  |
| Resistance per pole (average value)                                  |                                    | m?   | 0.6  |
| Power dissipation per pole (average value)                           |                                    |      |      |
|  | Ith                                | W    | 7.9  |
|  | AC3                                | W    | 5.4  |
| Tightening torque for terminals                                      |                                    |      |      |
|  | min                                | Nm   | 4    |
|  | max                                | Nm   | 5    |
|  | min                                | lbin | 3    |
|  | max                                | lbin | 3.7  |
| Tightening torque for coil terminal                                  |                                    |      |      |
|  | min                                | Nm   | 0.8  |
|  | max                                | Nm   | 1    |
|  | min                                | lbin | 0.59 |
|  | max                                | lbin | 0.74 |
| Max number of wires simultaneously connectable                       |                                    | Nr.  | 2    |
| Conductor section  |                                    |      |      |
|  | Flexible w/o 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     |
| <b>Mechanical features</b>                          |                  |                       |          |
| Operating position                                  |                  |                       |          |
|   | normal allowable | Vertical plan ±30°    |          |
| Fixing  |                  | Screw / DIN rail 35mm |          |
| Weight  |                  | g                     | 1        |
| <b>Operations</b>                                   |                  |                       |          |
| Mechanical life                                     |                  | cycles                | 15000000 |
| Electrical life                                     |                  | cycles                | 1100000  |
| <b>Safety related data</b>                          |                  |                       |          |
| Mirror contacts according to IEC/EN 60947-4-1       |                  |                       | YES      |
| EMC compatibility                                   |                  |                       | yes      |
| <b>AC coil operating</b>                            |                  |                       |          |
| Rated AC voltage at 50/60Hz                         |                  | V                     | 400      |
| 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                   | 20       |
|   | max              | %Us                   | 55       |
| AC average coil consumption at 20°C                 |                  |                       |          |
| of 50/60Hz coil powered at 50Hz                     |                  |                       |          |
|   | in-rush          | VA                    | 210      |
|   | holding          | VA                    | 15       |
| of 50/60Hz coil powered at 60Hz                     |                  |                       |          |
|   | in-rush          | VA                    | 195      |
|   | holding          | VA                    | 13       |
| 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 Us control in AC                   |                  |                       |          |
| Closing NO  |                  |                       |          |
|   | min              | ms                    | 12       |
|   | max              | ms                    | 28       |
| Opening NO  |                  |                       |          |
|   | min              | ms                    | 8        |

|       |            |     |    |    |
|-------|------------|-----|----|----|
| in DC | Closing NO | max | ms | 22 |
|       |            | min | ms | 40 |
|       | Opening NO | max | ms | 85 |
|       |            | min | ms | 20 |
|       |            | max | ms | 55 |
|       |            | min | ms | 20 |

#### UL technical data

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  |

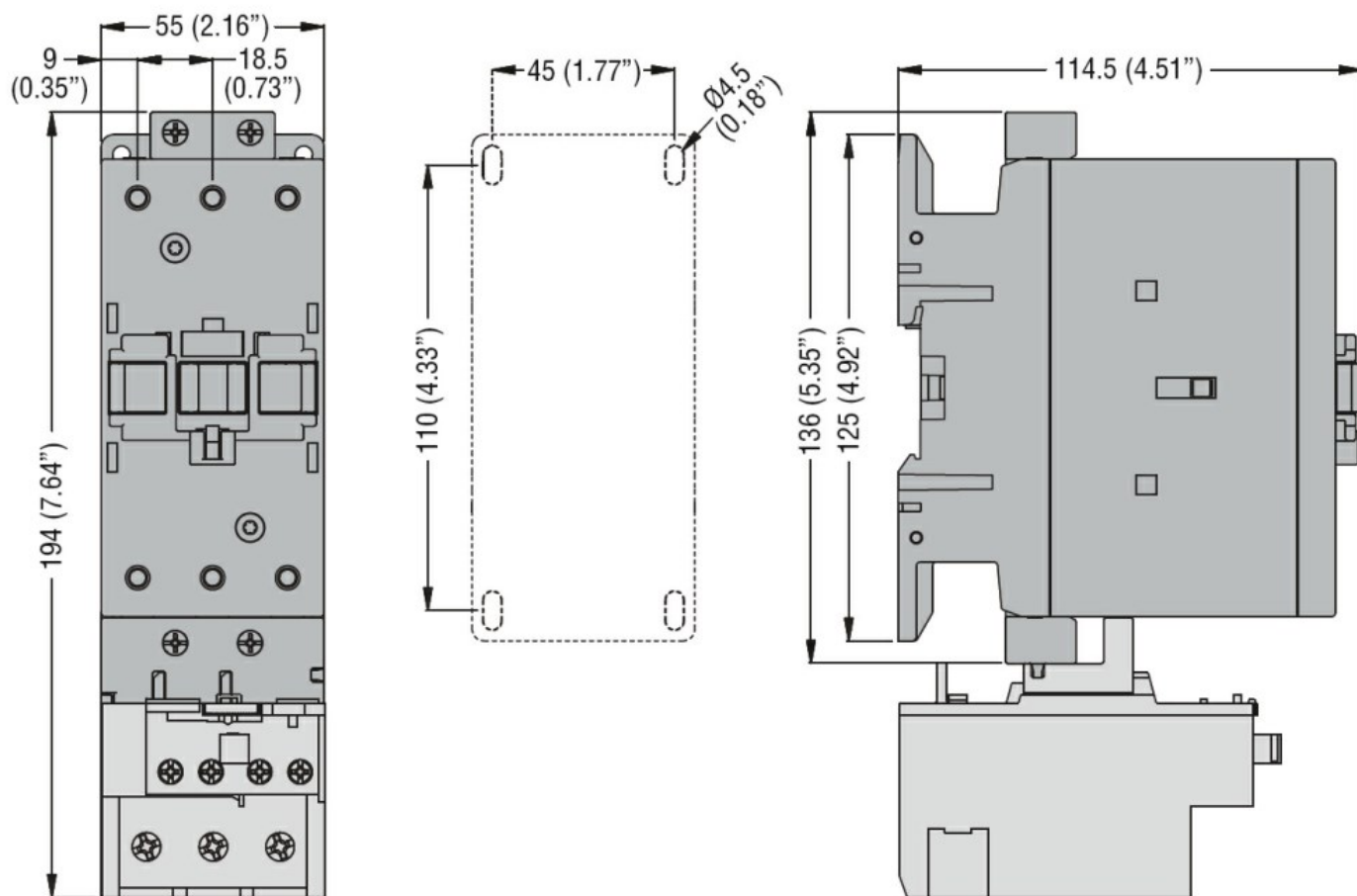
Storage temperature

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

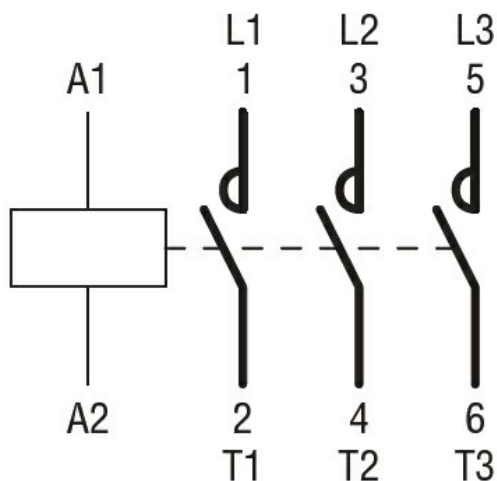
Max altitude

|   |      |
|---|------|
| m | 3000 |
|---|------|

#### Dimensions



## Wiring diagrams



## Certifications and compliance

### Compliance

CSA C22.2 n° 60947-1  
CSA C22.2 n° 60947-4-1  
IEC/EN 60947-1  
IEC/EN 60947-4-1  
UL 60947-1  
UL 60947-4-1

### Certificates

CCC

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cULus

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EAC

ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching