



Product designation

Power contactor

Product type designation

BF65

**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                                                  | 100     |
| Operational current $I_e$                                                      | AC-1 ( $\leq 40^\circ\text{C}$ )                   | A 100   |
|                                                                                | AC-1 ( $\leq 55^\circ\text{C}$ )                   | A 80    |
|                                                                                | AC-1 ( $\leq 70^\circ\text{C}$ )                   | A 70    |
|                                                                                | AC-3 ( $\leq 440\text{V } \leq 55^\circ\text{C}$ ) | A 65    |
|                                                                                | AC-4 (400V)                                        | A 31    |
| Rated operational power AC-3 ( $T \leq 55^\circ\text{C}$ )                     | 230V                                               | kW 18.5 |
|                                                                                | 400V                                               | kW 30   |
|                                                                                | 415V                                               | kW 37   |
|                                                                                | 440V                                               | kW 37   |
|                                                                                | 500V                                               | kW 37   |
|                                                                                | 690V                                               | kW 45   |
|                                                                                | 1000V                                              | kW 30   |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V                                               | kW 38   |
|                                                                                | 400V                                               | kW 65   |
|                                                                                | 500V                                               | kW 82   |
|                                                                                | 690V                                               | kW 114  |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                  | A 50    |
|                                                                                | 48V                                                | A 50    |
|                                                                                | 75V                                                | A 50    |
|                                                                                | 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 70    |
|                                                                                | 48V                                                | A 70    |
|                                                                                | 75V                                                | A 70    |
|                                                                                | 110V                                               | A 60    |
|                                                                                | 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 70    |
|                                                                                | 48V                                                | A 70    |
|                                                                                | 75V                                                | A 70    |

|                                                                      |          |      |      |
|----------------------------------------------------------------------|----------|------|------|
|                                                                      | 110V     | A    | 60   |
|                                                                      | 220V     | A    | 90   |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 4 poles in series      |          |      |      |
|                                                                      | ≤24V     | A    | 70   |
|                                                                      | 48V      | A    | 70   |
|                                                                      | 75V      | A    | 70   |
|                                                                      | 110V     | A    | 70   |
|                                                                      | 220V     | A    | 110  |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 35   |
|                                                                      | 48V      | A    | 25   |
|                                                                      | 75V      | A    | 25   |
|                                                                      | 110V     | A    | 3    |
|                                                                      | 220V     | A    | –    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 45   |
|                                                                      | 48V      | A    | 40   |
|                                                                      | 75V      | A    | 40   |
|                                                                      | 110V     | A    | 30   |
|                                                                      | 220V     | A    | 5    |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 55   |
|                                                                      | 48V      | A    | 50   |
|                                                                      | 75V      | A    | 50   |
|                                                                      | 110V     | A    | 35   |
|                                                                      | 220V     | A    | 52   |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series |          |      |      |
|                                                                      | ≤24V     | A    | 60   |
|                                                                      | 48V      | A    | 60   |
|                                                                      | 75V      | A    | 60   |
|                                                                      | 110V     | A    | 50   |
|                                                                      | 220V     | A    | 65   |
| 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    | 650  |
| Breaking capacity at voltage                                         |          |      |      |
|                                                                      | 440V     | A    | 520  |
|                                                                      | 500V     | A    | 425  |
|                                                                      | 690V     | A    | 376  |
| Resistance per pole (average value)                                  |          | mΩ   | 0.8  |
| Power dissipation per pole (average value)                           |          |      |      |
|                                                                      | Ith      | W    | 8    |
|                                                                      | AC3      | W    | 3.4  |
| Tightening torque for terminals                                      |          |      |      |
|                                                                      | min      | Nm   | 4    |
|                                                                      | max      | Nm   | 5    |
|                                                                      | min      | lbin | 2.95 |
|                                                                      | max      | lbin | 3.69 |
| Tightening torque for coil terminal                                  |          |      |      |
|                                                                      | min      | Nm   | 0.8  |
|                                                                      | max      | Nm   | 1    |

|                                                     |                  |                 |                       |
|-----------------------------------------------------|------------------|-----------------|-----------------------|
|                                                     | min              | lbin            | 0.8                   |
|                                                     | max              | lbin            | 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 ±30°    |
| Fixing                                              |                  |                 | Screw / DIN rail 35mm |
| Weight                                              |                  | g               | 1020                  |
| Conductor section                                   |                  |                 |                       |
| AWG/kcmil conductor section                         |                  |                 |                       |
|                                                     | max              |                 | 2                     |
| <b>Operations</b>                                   |                  |                 |                       |
| Mechanical life                                     |                  | cycles          | 15000000              |
| Electrical life                                     |                  | cycles          | 1400000               |
| <b>Safety related data</b>                          |                  |                 |                       |
| Performance level B10d according to EN/ISO 13489-1  |                  |                 |                       |
|                                                     | rated load       | cycles          | 1400000               |
|                                                     | mechanical load  | cycles          | 15000000              |
| Mirror contacts according to IEC/EN 60947-4-1       |                  |                 | yes                   |
| EMC compatibility                                   |                  |                 | yes                   |
| <b>AC coil operating</b>                            |                  |                 |                       |
| Rated AC voltage at 60Hz                            |                  | V               | 24                    |
| 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                     |
| <b>Max cycles frequency</b>                         |                  |                 |                       |
| Mechanical operation                                |                  | cycles/h        | 3600                  |
| <b>Operating times</b>                              |                  |                 |                       |
| Average time for Us control                         |                  |                 |                       |
| in AC                                               |                  |                 |                       |
| Closing NO                                          |                  |                 |                       |

|       |            |     |    |    |
|-------|------------|-----|----|----|
| in DC | Opening NO | min | ms | 12 |
|       |            | max | ms | 28 |
|       |            | min | ms | 8  |
|       |            | max | ms | 22 |
|       | Closing NO | min | ms | 40 |
|       |            | max | ms | 85 |
|       | Opening NO | min | ms | 20 |
|       |            | max | ms | 55 |

#### UL technical data

Full-load current (FLA) for three-phase AC motor

|         |   |    |
|---------|---|----|
| at 480V | A | 65 |
| at 600V | A | 62 |

Yielded mechanical performance

for three-phase AC motor

|          |    |    |
|----------|----|----|
| 200/208V | HP | 20 |
| 220/230V | HP | 25 |
| 460/480V | HP | 50 |
| 575/600V | HP | 60 |

General USE

Contactor

|            |   |     |
|------------|---|-----|
| AC current | A | 100 |
|------------|---|-----|

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

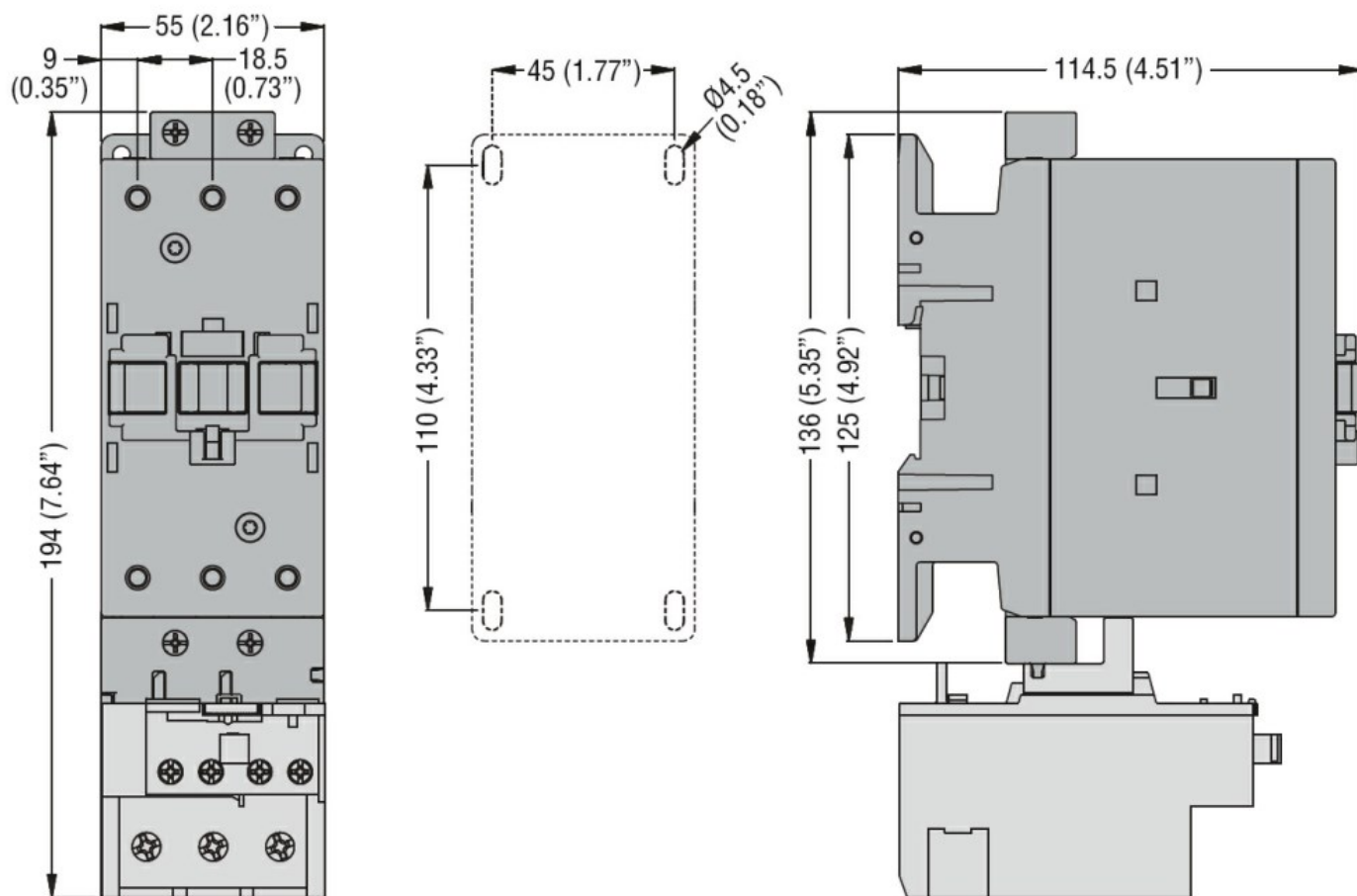
|   |      |
|---|------|
| m | 3000 |
|---|------|

#### Resistance & Protection

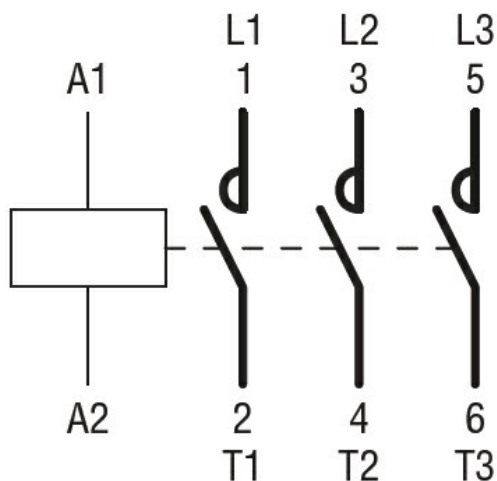
Pollution degree

3

#### Dimensions



## Wiring diagrams



## Certifications and compliance

### Compliance

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