# BF4000E024

THREE-POLE CONTACTOR, IEC OPERATING CURRENT IE (AC3) = 40A, AC/DC COIL, 20...48VAC/DC

| | | | |
|---|---|---|---|
| Product designation | | | Power contactor |
| Product type designation | | | BF40 |
| **Contact characteristics** | | | |
| Number of poles | | Nr. | 3 |
| Rated insulation voltage Ui IEC/EN | | V | 1000 |
| Rated impulse withstand voltage Uimp | | kV | 8 |
| Operational frequency | | | |
| | min | Hz | 25 |
| | max | Hz | 400 |
| IEC Conventional free air thermal current Ith | | A | 70 |
| Operational current Ie | | | |
| | AC-1 (≤40°C) | A | 70 |
| | AC-1 (≤55°C) | A | 60 |
| | AC-1 (≤70°C) | A | 50 |
| | AC-3 (≤440V ≤55°C) | A | 40 |
| | AC-4 (400V) | A | 24 |
| Rated operational power AC-3 (T≤55°C) | | | |
| | 230V | kW | 11 |
| | 400V | kW | 18.5 |
| | 415V | kW | 22 |
| | 440V | kW | 22 |
| | 500V | kW | 22 |
| | 690V | kW | 30 |
| | 1000V | kW | 18.5 |
| Rated operational power AC-1 (T≤40°C) | | | |
| | 230V | kW | 26 |
| | 400V | kW | 46 |
| | 500V | kW | 58 |
| | 690V | kW | 79 |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 1 poles in series | | | |
| | ≤24V | A | 40 |
| | 48V | A | 35 |
| | 75V | A | 30 |
| | 110V | A | 8 |
| | 220V | A | – |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 2 poles in series | | | |
| | ≤24V | A | 48 |
| | 48V | A | 48 |
| | 75V | A | 45 |
| | 110V | A | 42 |
| | 220V | A | 5 |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 3 poles in series | | | |
| | ≤24V | A | 48 |
| | 48V | A | 48 |
| | 75V | A | 48 |
| | 110V | A | 44 |
| | 220V | A | 56 |
| IEC max current Ie in DC1 with L/R ≤ 1ms with 4 poles in series | | | |
| | ≤24V | A | – |
| | 48V | A | – |
| | 75V | A | – |
| | 110V | A | – |
| | 220V | A | 70 |

| | | | |
|---|---|---|---|
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 1 poles in series | | | |
| | ≤24V | A | 27 |
| | 48V | A | 23 |
| | 75V | A | 19 |
| | 110V | A | 3 |
| | 220V | A | – |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 2 poles in series | | | |
| | ≤24V | A | 32 |
| | 48V | A | 30 |
| | 75V | A | 27 |
| | 110V | A | 22 |
| | 220V | A | 5 |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 3 poles in series | | | |
| | ≤24V | A | 40 |
| | 48V | A | 40 |
| | 75V | A | 38 |
| | 110V | A | 27 |
| | 220V | A | 32 |
| IEC max current Ie in DC3-DC5 with L/R ≤ 15ms with 4 poles in series | | | |
| | ≤24V | A | – |
| | 48V | A | – |
| | 75V | A | – |
| | 110V | A | – |
| | 220V | A | 40 |
| 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 | 400 |
| Breaking capacity at voltage | | | |
| | 440V | A | 320 |
| | 500V | A | 265 |
| | 690V | A | 256 |
| Resistance per pole (average value) | | mΩ | 0.8 |
| Power dissipation per pole (average value) | | | |
| | Ith | W | 3.9 |
| | AC3 | W | 1.3 |
| 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 | Prodotti finiti |
| | max | lbin | Prodotti finiti |
| Max number of wires simultaneously connectable | | Nr. | 2 |
| Conductor section | | | |
| 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 | | Vertical plan |
| | | allowable | | ±30° |
| Fixing | | | | Screw / DIN rail 35mm |
| Weight | | | g | 1060 |
| **Operations** | | | | |
| Mechanical life | | | cycles | 15000000 |
| Electrical life | | | cycles | 1500000 |
| **Safety related data** | | | | |
| Performance level B10d according to EN/ISO 13489-1 | | | | |
| | | rated load | cycles | 1500000 |
| | | mechanical load | cycles | 15000000 |
| Mirror contats according to IEC/EN 609474-4-1 | | | | Yes |
| EMC compatibility | | | | Yes |
| **AC coil operating** | | | | |
| Rated AC voltage at 50/60Hz, 60Hz | | | | |
| | | min | V | 20 |
| | | max | V | 48 |
| Rated AC voltage at 50/60Hz | | | V | 24 |
| AC operating voltage | | | | |
| | of 50/60Hz coil powered at 50Hz | | | |
| | 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 |
| Dissipation at holding ≤20°C 50Hz | | | W | 1…2.5 |
| **DC coil operating** | | | | |
| DC rated control voltage | | | | |
| | | min | V | 20 |
| | | max | V | 48 |
| DC rated control voltage | | | V | 24 |
| DC operating voltage | | | | |
| | pick-up | | | |
| | | min | %Us | 85 Us min |
| | | max | %Us | 110 Us max |
| | drop-out | | | |
| | | max | %Us | ≤70 Us min |

| | | | | |
|---|---|---|---|---|
| Average coil consumption ≤20°C | | | | |
| | | in-rush | W | 23…68 |
| | | holding | W | 1.2…1,9 |
| **Max cycles frequency** | | | | |
| Mechanical operation | | | cycles/h | 1500 |
| **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** | | | | |
| Full-load current (FLA) for three-phase AC motor | | | | |
| | | | at 480V A | 40 |
| | | | at 600V A | 32 |
| Yielded mechanical performance | | | | |
| | for single-phase AC motor | | | |
| | | | 110/120V HP | 3 |
| | | | 230V HP | 7.5 |
| | for three-phase AC motor | | | |
| | | | 200/208V HP | 10 |
| | | | 220/230V HP | 15 |
| | | | 460/480V HP | 30 |
| | | | 575/600V HP | 30 |
| General USE | | | | |
| | Contactor | | | |
| | | | AC current A | 70 |
| | Auxiliary contacts | | | |
| | | | AC voltage V | 600 |
| | | | AC current A | 10 |
| | | | DC voltage V | 250 |
| | | | DC current A | 1 |
| 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 |
| Contact rating of auxiliary contacts according to UL | | | | SI - A600 |
| **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 60947-1 | | | |
| | IEC/EN 60947-4-1 | | | |
| | UL 60947-1 | | | |
| | UL 60947-4-1 | | | |
| Certificates | | | | |
| | CCC | | | |
| | cULus | | | |

## ETIM classification

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|---|---|
| ETIM 8.0 | EC000066 - Power contactor, AC switching |