



Power contactor  
BF160

Product designation

Product type designation

**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   | 250    |
| Operational current $I_e$  | AC-1 ( $\leq 40^\circ\text{C}$ )                  | A 250  |
|  | AC-1 ( $\leq 55^\circ\text{C}$ )                  | A 210  |
|  | AC-1 ( $\leq 70^\circ\text{C}$ )                  | A 180  |
|  | AC-3 ( $\leq 440\text{V} \leq 55^\circ\text{C}$ ) | A 160  |
|  | AC-4 (400V)                                       | A 75   |
| Rated operational power AC-3 ( $T \leq 55^\circ\text{C}$ )                     | 230V  | kW 45  |
|  | 400V  | kW 75  |
|  | 415V  | kW 90  |
|  | 440V  | kW 90  |
|  | 500V  | kW 110 |
|  | 690V  | kW 132 |
|  | 1000V   | kW 75  |
| Rated operational power AC-1 ( $T \leq 40^\circ\text{C}$ )                     | 230V  | kW 95  |
|  | 400V  | kW 165 |
|  | 500V  | kW 181 |
|  | 690V  | kW 284 |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$                                 | A 250  |
|  | 48V   | A 250  |
|  | 75V   | A 250  |
|  | 110V  | A 110  |
|  | 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 250  |
|  | 48V   | A 250  |
|  | 75V   | A 250  |
|  | 110V  | A 150  |
|  | 220V  | A 130  |
| IEC max current $I_e$ in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$                                 | A 250  |
|  | 48V   | A 250  |
|  | 75V   | A 250  |

|  |                 |                  |      |
|--|-----------------|------------------|------|
|  | 110V            | A                | 160  |
|  | 220V            | A                | 150  |
|  | 330V            | A                | 130  |
| <hr/>  |                 |                  |      |
| IEC max current I <sub>e</sub> in DC1 with L/R ≤ 1ms with 4 poles in series      | ≤24V            | A                | 250  |
|  | 48V             | A                | 250  |
|  | 75V             | A                | 250  |
|  | 110V            | A                | 250  |
|  | 220V            | A                | 250  |
| <hr/>  |                 |                  |      |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 1 poles in series | ≤24V            | A                | 250  |
|  | 48V             | A                | 250  |
|  | 75V             | A                | 160  |
|  | 110V            | A                | 80   |
|  | 220V            | A                | –    |
| <hr/>  |                 |                  |      |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 2 poles in series | ≤24V            | A                | 250  |
|  | 48V             | A                | 250  |
|  | 75V             | A                | 160  |
|  | 110V            | A                | 120  |
|  | 220V            | A                | 90   |
| <hr/>  |                 |                  |      |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 3 poles in series | ≤24V            | A                | 250  |
|  | 48V             | A                | 250  |
|  | 75V             | A                | 160  |
|  | 110V            | A                | 140  |
|  | 220V            | A                | 120  |
|  | 330V            | A                | 90   |
| <hr/>  |                 |                  |      |
| IEC max current I <sub>e</sub> in DC3-DC5 with L/R ≤ 15ms with 4 poles in series | ≤24V            | A                | 250  |
|  | 48V             | A                | 250  |
|  | 75V             | A                | 160  |
|  | 110V            | A                | 140  |
|  | 220V            | A                | 140  |
|  | 330V            | A                | 140  |
|  | 460V            | A                | 90   |
| <hr/>  |                 |                  |      |
| Short-time allowable current for 10s (IEC/EN60947-1)                             |                 | A                | 1280 |
| <hr/>  |                 |                  |      |
| Protection fuse  | gG (IEC)        | A                | 315  |
|  | aM (IEC)        | A                | 200  |
| <hr/>  |                 |                  |      |
| Making capacity (RMS value)  |                 | A                | 1360 |
| <hr/>  |                 |                  |      |
| Breaking capacity at voltage   | 440V            | A                | 1360 |
|  | 500V            | A                | 1326 |
|  | 690V            | A                | 1139 |
| <hr/>  |                 |                  |      |
| Resistance per pole (average value)  |                 | mΩ               | 0.18 |
| <hr/>  |                 |                  |      |
| Power dissipation per pole (average value)                                       | I <sub>th</sub> | W                | 11   |
|  | AC3             | W                | 4.5  |
| <hr/>  |                 |                  |      |
| Tightening torque for terminals  | min             | Nm               | 18   |
|  | max             | Nm               | 18   |
|  | min             | I <sub>bin</sub> | 159  |
|  | max             | I <sub>bin</sub> | 159  |

Tightening torque for coil terminal

|     |    |     |
|-----|----|-----|
| min | Nm | 0.8 |
| max | Nm | 1   |

Power terminal protection according to IEC/EN 60529

IP00

**Mechanical features**

Operating position

|           |               |
|-----------|---------------|
| normal    | Vertical plan |
| allowable | ±30°          |

Fixing

Screw

Weight

g 3000

**Operations**

Mechanical life

cycles 10000000

Electrical life

cycles 1000000

**Safety related data**

Performance level B10d according to EN/ISO 13489-1

rated load cycles 1000000

EMC compatibility

yes

**AC coil operating**

Rated AC voltage at 50/60Hz, 60Hz

|     |   |    |
|-----|---|----|
| min | V | 24 |
| max | V | 60 |

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 | 160...230 |
| holding | VA | 1.5...3.0 |

of 50/60Hz coil powered at 60Hz

|         |    |           |
|---------|----|-----------|
| in-rush | VA | 160...230 |
| holding | VA | 1.5...3.0 |

of 60Hz coil powered at 60Hz

|         |    |           |
|---------|----|-----------|
| in-rush | VA | 160...230 |
| holding | VA | 1.5...3.0 |

Dissipation at holding ≤20°C 50Hz

W 1.5...3.0

**DC coil operating**

DC rated control voltage

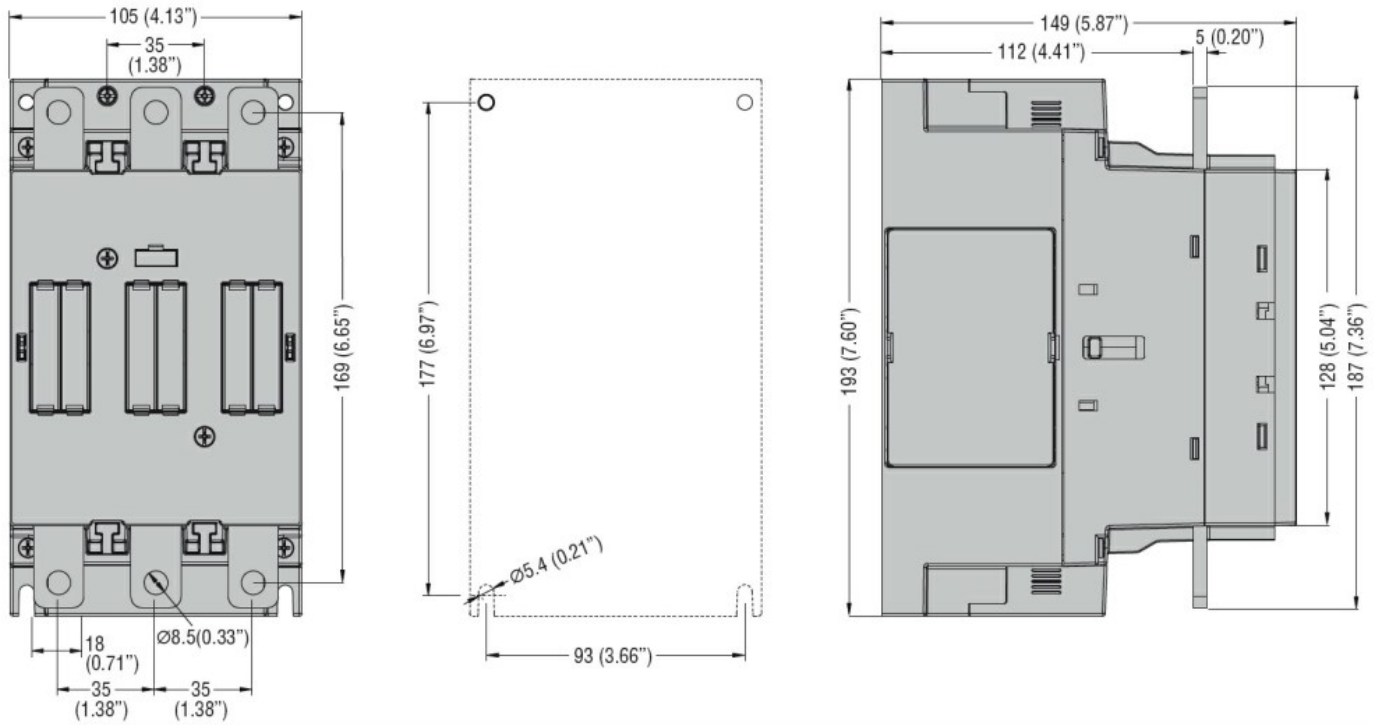
|     |   |    |
|-----|---|----|
| min | V | 20 |
| max | V | 60 |

DC operating voltage

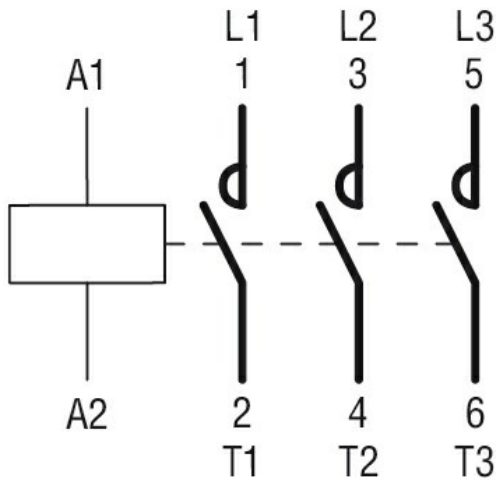
pick-up

|     |     |            |
|-----|-----|------------|
| 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        | 160...230      |
|                                     | holding               | W        | 1.5...3.0      |
| <b>Max cycles frequency</b>         |                       |          |                |
| Mechanical operation                |                       | cycles/h | 1000           |
| <b>Operating times</b>              |                       |          |                |
| Average time for Us control         |                       |          |                |
| in AC                               |                       |          |                |
| Closing NO                          |                       |          |                |
|                                     |                       | min      | ms 50          |
|                                     |                       | max      | ms 100         |
| Opening NO                          |                       |          |                |
|                                     |                       | min      | ms 35          |
|                                     |                       | max      | ms 75          |
| <b>UL technical data</b>            |                       |          |                |
| Yielded mechanical performance      |                       |          |                |
| for three-phase AC motor            |                       |          |                |
|                                     | 200/208V              | HP       | 50             |
|                                     | 220/230V              | HP       | 60             |
|                                     | 460/480V              | HP       | 125            |
|                                     | 575/600V              | HP       | 150            |
| General USE                         |                       |          |                |
| Contactor                           |                       |          |                |
|                                     | AC current            | A        | 250            |
| Short-circuit protection fuse, 600V |                       |          |                |
| High fault                          |                       |          |                |
|                                     | Short circuit current | kA       | 100            |
|                                     | Fuse rating           | A        | 400            |
|                                     | Fuse class            |          | J              |
| Standard fault                      |                       |          |                |
|                                     | Short circuit current | kA       | 10             |
|                                     | Fuse rating           | A        | 400            |
|                                     | Fuse class            |          | RK5            |
| <b>Ambient conditions</b>           |                       |          |                |
| Temperature                         |                       |          |                |
| Operating temperature               |                       |          |                |
|                                     | min                   | °C       | -40            |
|                                     | max                   | °C       | 70             |
| Storage temperature                 |                       |          |                |
|                                     | min                   | °C       | -50            |
|                                     | max                   | °C       | 80             |
| Max altitude                        |                       |          |                |
|                                     |                       | m        | 3000           |
| <b>Resistance &amp; Protection</b>  |                       |          |                |
| Pollution degree                    |                       |          |                |
|                                     |                       |          | 3              |
| <b>Dimensions [mm (in)]</b>         |                       |          |                |



### Wiring diagrams



### Certifications and compliance

#### Compliance

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

#### Certificates

cULus

### ETIM classification

ETIM 8.0

EC000066 -  
Power contactor,  
AC switching