



Product designation

Product type designation

Power contactor  
BF160

**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 $I_{th}$                             | 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 current AC-3 ( $T \leq 55^\circ\text{C}$ )                   |                                                    |        |
|                                                                                | 230V                                               | A 160  |
|                                                                                | 400V                                               | A 160  |
|                                                                                | 415V                                               | A 160  |
|                                                                                | 440V                                               | A 160  |
|                                                                                | 500V                                               | A 150  |
|                                                                                | 690V                                               | A 135  |
|                                                                                | 1000V                                              | A 60   |
| 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  |
| IEC max current Ie 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  |
| IEC max current Ie 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    | –    |
| IEC max current Ie 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   |
| IEC max current Ie 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   |
| IEC max current Ie 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   |
| Short-time allowable current for 10s (IEC/EN60947-1)                 |          | A    | 1280 |
| Protection fuse                                                      |          |      |      |
|                                                                      | gG (IEC) | A    | 315  |
|                                                                      | aM (IEC) | A    | 200  |
| Making capacity (RMS value)                                          |          | A    | 1360 |
| Breaking capacity at voltage                                         |          |      |      |
|                                                                      | 440V     | A    | 1360 |
|                                                                      | 500V     | A    | 1326 |
|                                                                      | 690V     | A    | 1139 |
| Resistance per pole (average value)                                  |          | mΩ   | 0.18 |
| Power dissipation per pole (average value)                           |          |      |      |
|                                                                      | Ith      | W    | 11   |
|                                                                      | AC-3     | W    | 4.5  |
| Tightening torque for terminals                                      |          |      |      |
|                                                                      | min      | Nm   | 18   |
|                                                                      | max      | Nm   | 18   |
|                                                                      | min      | Ibin | 159  |
|                                                                      | max      | Ibin | 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<br>allowable | Vertical plan<br>±30° |
|---------------------|-----------------------|

Fixing

Screw

Weight

|   |      |
|---|------|
| g | 4000 |
|---|------|

### 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  |
| mechanical load | cycles | 10000000 |

EMC compatibility

yes

### AC coil operating

Rated AC voltage at 50/60Hz, 60Hz

|     |   |     |
|-----|---|-----|
| min | V | 100 |
| max | V | 250 |

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

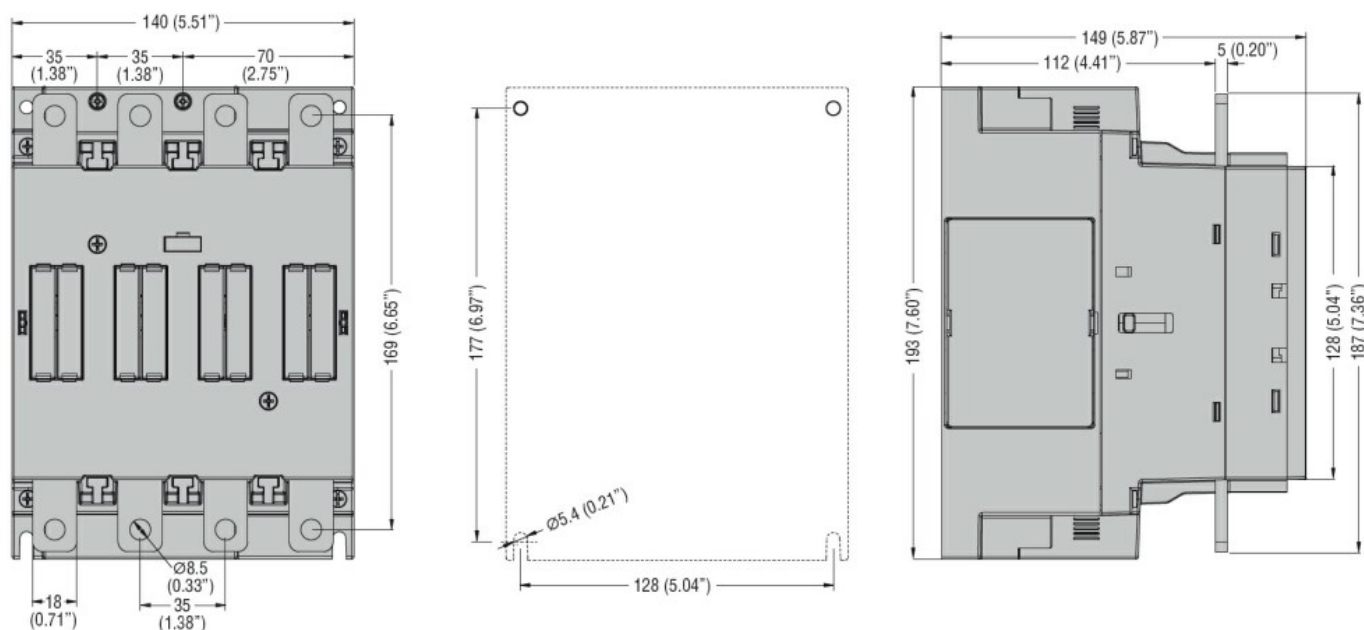
|     |   |     |
|-----|---|-----|
| min | V | 100 |
| max | V | 250 |

DC operating voltage

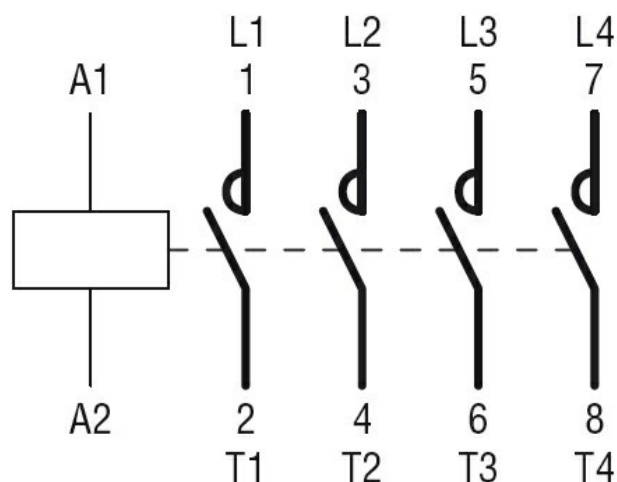
pick-up

|     |     |           |
|-----|-----|-----------|
| 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  |
| Max cycles frequency                |  |                       |          |            |
| Mechanical operation                |  |                       | cycles/h | 1000       |
| Operating times                     |  |                       |          |            |
| Average time for Us control         |  |                       |          |            |
| in AC                               |  |                       |          |            |
|                                     |  | Closing NO            |          |            |
|                                     |  | min                   | ms       | 50         |
|                                     |  | max                   | ms       | 100        |
|                                     |  | Opening NO            |          |            |
|                                     |  | min                   | ms       | 35         |
|                                     |  | max                   | ms       | 75         |
| UL technical data                   |  |                       |          |            |
| Rated operational voltage AC (UL)   |  |                       | V        | 600        |
| 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        |
| 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/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