



| | | | | |
|--|---|----|-----|-----------------|
| Product designation | | | | Power contactor |
| Product type designation | | | | BF12 |
| Contact characteristics | | | | |
| Number of poles | Nr. | | | 3 |
| Rated insulation voltage U_i IEC/EN | V | | | 690 |
| Rated impulse withstand voltage U_{imp} | kV | | | 6 |
| Operational frequency | min | Hz | 25 | |
| | max | Hz | 400 | |
| IEC Conventional free air thermal current I_{th} | A | | | 28 |
| Operational current I_e | AC-1 ($\leq 40^\circ\text{C}$) | A | 28 | |
| | AC-1 ($\leq 55^\circ\text{C}$) | A | 23 | |
| | AC-1 ($\leq 70^\circ\text{C}$) | A | 20 | |
| | AC-3 ($\leq 440\text{V} \leq 55^\circ\text{C}$) | A | 12 | |
| | AC-4 (400V) | A | 7.9 | |
| Rated operational power AC-3 ($T \leq 55^\circ\text{C}$) | 230V | kW | 3.2 | |
| | 400V | kW | 5.7 | |
| | 415V | kW | 6.2 | |
| | 440V | kW | 6.2 | |
| | 500V | kW | 7.5 | |
| | 690V | kW | 10 | |
| Rated operational power AC-1 ($T \leq 40^\circ\text{C}$) | 230V | kW | 10 | |
| | 400V | kW | 18 | |
| | 500V | kW | 23 | |
| | 690V | kW | 32 | |
| IEC max current I_e in DC1 with $L/R \leq 1\text{ms}$ with 1 poles in series | $\leq 24\text{V}$ | A | 17 | |
| | 48V | A | 15 | |
| | 75V | A | 13 | |
| | 110V | A | 6 | |
| | 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 | 20 | |
| | 48V | A | 20 | |
| | 75V | A | 18 | |
| | 110V | A | 13 | |
| | 220V | A | 1 | |
| IEC max current I_e in DC1 with $L/R \leq 1\text{ms}$ with 3 poles in series | $\leq 24\text{V}$ | A | 22 | |
| | 48V | A | 22 | |
| | 75V | A | 20 | |
| | 110V | A | 16 | |

| | | | |
|--|-----------------|------------------|-----|
| | 220V | A | 11 |
| <hr/> | | | |
| IEC max current I _e in DC1 with L/R ≤ 1ms with 4 poles in series | | | |
| | ≤24V | A | 20 |
| | 48V | A | 20 |
| | 75V | A | 20 |
| | 110V | A | 16 |
| | 220V | A | 12 |
| <hr/> | | | |
| IEC max current I _e in DC3-DC5 with L/R ≤ 15ms with 1 poles in series | | | |
| | ≤24V | A | 12 |
| | 48V | A | 11 |
| | 75V | A | 10 |
| | 110V | A | 2 |
| | 220V | A | – |
| <hr/> | | | |
| IEC max current I _e in DC3-DC5 with L/R ≤ 15ms with 2 poles in series | | | |
| | ≤24V | A | 15 |
| | 48V | A | 13 |
| | 75V | A | 12 |
| | 110V | A | 8 |
| | 220V | A | 2 |
| <hr/> | | | |
| IEC max current I _e in DC3-DC5 with L/R ≤ 15ms with 3 poles in series | | | |
| | ≤24V | A | 18 |
| | 48V | A | 18 |
| | 75V | A | 15 |
| | 110V | A | 12 |
| | 220V | A | 6 |
| <hr/> | | | |
| IEC max current I _e in DC3-DC5 with L/R ≤ 15ms with 4 poles in series | | | |
| | ≤24V | A | 15 |
| | 48V | A | 15 |
| | 75V | A | 15 |
| | 110V | A | 16 |
| | 220V | A | 7 |
| <hr/> | | | |
| Short-time allowable current for 10s (IEC/EN60947-1) | | A | 150 |
| <hr/> | | | |
| Protection fuse | | | |
| | gG (IEC) | A | 32 |
| | aM (IEC) | A | 12 |
| <hr/> | | | |
| Making capacity (RMS value) | | A | 120 |
| <hr/> | | | |
| Breaking capacity at voltage | | | |
| | 440V | A | 96 |
| | 500V | A | 96 |
| | 690V | A | 94 |
| <hr/> | | | |
| Resistance per pole (average value) | | mΩ | 2.5 |
| <hr/> | | | |
| Power dissipation per pole (average value) | | | |
| | I _{th} | W | 2 |
| | AC3 | W | 0.4 |
| <hr/> | | | |
| Tightening torque for terminals | | | |
| | min | Nm | 1.5 |
| | max | Nm | 1.8 |
| | min | I _{bin} | 1.1 |
| | max | I _{bin} | 1.5 |
| <hr/> | | | |
| Tightening torque for coil terminal | | | |
| | min | Nm | 0.8 |
| | max | Nm | 1 |
| | min | I _{bin} | 0.8 |

| | | | | |
|---|-----------|-----|------------------|--------------------------|
| | | max | I _{bin} | 0.74 |
| Max number of wires simultaneously connectable | | | Nr. | 2 |
| Conductor section | AWG/Kcmil | max | | 10 |
| Flexible w/o lug conductor section | | min | mm ² | 1 |
| | | max | mm ² | 6 |
| Flexible c/w lug conductor section | | min | mm ² | 1 |
| | | max | mm ² | 4 |
| Flexible with insulated spade lug conductor section | | min | mm ² | 1 |
| | | max | mm ² | 4 |
| Power terminal protection according to IEC/EN 60529 | | | | IP20 when properly wired |

Mechanical features

| | | | | |
|--------------------|-----------------------------|------------------|---|-----------------------|
| Operating position | | normal allowable | | Vertical plan ±30° |
| Fixing | | | | Screw / DIN rail 35mm |
| Weight | | | g | 502 |
| Conductor section | AWG/kcmil conductor section | max | | 10 |

Auxiliary contact characteristics

| | | | | |
|---------------------------------|--|------|---|-------------|
| Thermal current I _{th} | | A | | 10 |
| IEC/EN 60947-5-1 designation | | | | A600 - P600 |
| Operating current AC15 | | 230V | A | 3 |
| | | 400V | A | 1.9 |
| | | 500V | A | 1.4 |
| Operating current DC12 | | 110V | A | 5.7 |
| Operating current DC13 | | 24V | A | 5.7 |
| | | 48V | A | 2.9 |
| | | 60V | A | 2.3 |
| | | 110V | A | 1.25 |
| | | 125V | A | 1.1 |
| | | 220V | A | 0.55 |
| | | 600V | A | 0.2 |

Operations

| | | | | |
|-----------------|--|--------|--|----------|
| Mechanical life | | cycles | | 20000000 |
| Electrical life | | cycles | | 2000000 |

Safety related data

| | | | | |
|--|--|-----------------|--------|----------|
| Performance level B10d according to EN/ISO 13489-1 | | rated load | cycles | 2000000 |
| | | mechanical load | cycles | 20000000 |
| Mirror contacts according to IEC/EN 60947-4-1 | | | | yes |
| EMC compatibility | | | | yes |

DC coil operating

| | | | |
|--|---------|-----|-----|
| DC rated control voltage | | V | 24 |
| DC operating voltage | | | |
| pick-up | min | %Us | 80 |
| | max | %Us | 110 |
| drop-out | min | %Us | 10 |
| | max | %Us | 40 |
| Average coil consumption $\leq 20^{\circ}\text{C}$ | in-rush | W | 2.4 |
| | holding | W | 2.4 |

Max cycles frequency

| | | |
|----------------------|----------|------|
| Mechanical operation | cycles/h | 3600 |
|----------------------|----------|------|

Operating times

| | | | | |
|-----------------------------|------------|-----|----|----|
| Average time for Us control | | | | |
| in AC | | | | |
| | Closing NO | min | ms | 8 |
| | | max | ms | 24 |
| | Opening NO | min | ms | 10 |
| | | max | ms | 20 |
| | Closing NC | min | ms | 14 |
| | | max | ms | 28 |
| | Opening NC | min | ms | 7 |
| | | max | ms | 18 |
| in DC | | | | |
| | Closing NO | min | ms | 75 |
| | | max | ms | 91 |
| | Opening NO | min | ms | 15 |
| | | max | ms | 19 |

UL technical data

| | | | |
|--|---------|---|----|
| Full-load current (FLA) for three-phase AC motor | at 480V | A | 11 |
| | at 600V | A | 11 |

| | | | |
|--------------------------------|----------|----|-----|
| Yielded mechanical performance | | | |
| for single-phase AC motor | 110/120V | HP | 1 |
| | 230V | HP | 2 |
| for three-phase AC motor | 200/208V | HP | 5 |
| | 220/230V | HP | 5 |
| | 460/480V | HP | 7.5 |
| | 575/600V | HP | 10 |

| | | | |
|--------------------|------------|---|-----|
| General USE | | | |
| Contactor | AC current | A | 28 |
| 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 | 30 |
| | Fuse class | | J |
| Standard fault | | | |
| | Short circuit current | kA | 5 |
| | Fuse rating | A | 70 |
| Contact rating of auxiliary contacts according to UL | | | A600 - P600 |

Ambient conditions

Temperature

Operating temperature

| | | |
|-----|----|-----|
| min | °C | -50 |
| max | °C | 70 |

Storage temperature

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

Max altitude

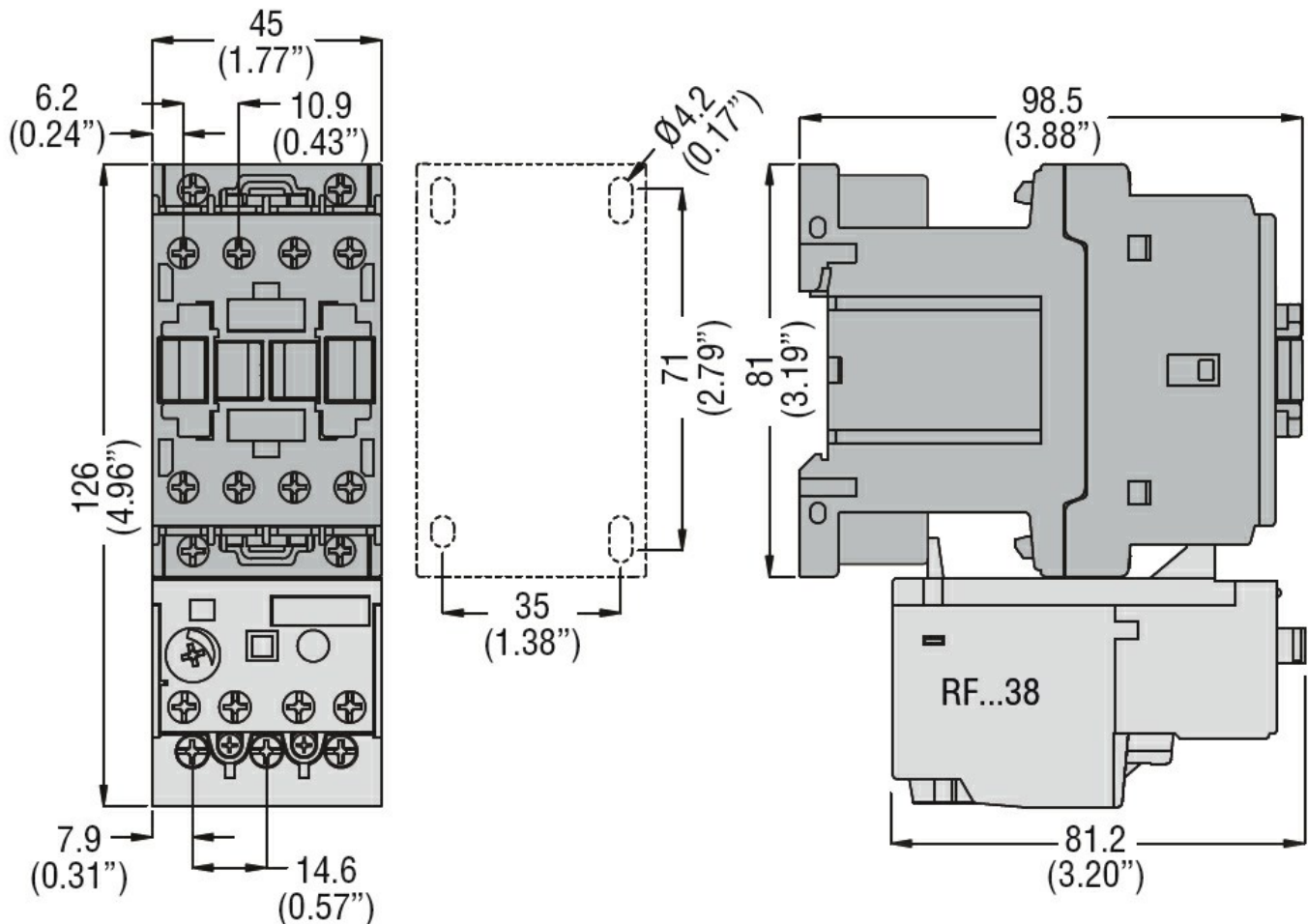
| | |
|---|------|
| m | 3000 |
|---|------|

Resistance & Protection

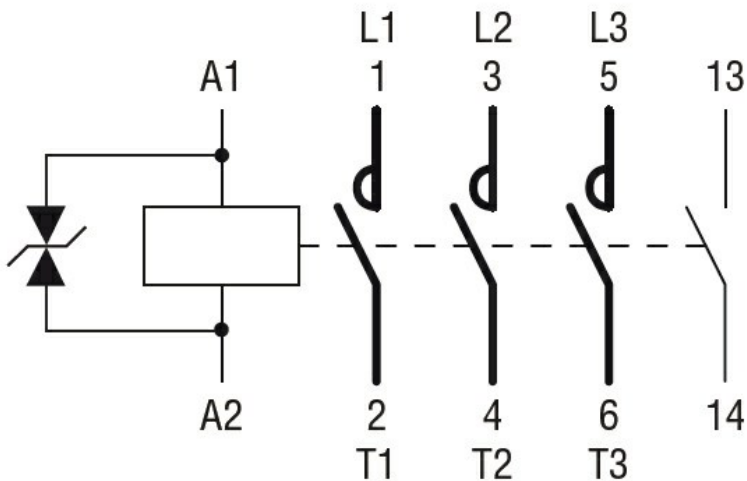
Pollution degree

3

Dimensions [mm (in)]



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

CCC

cULus

EAC

ETIM classification

ETIM 8.0

EC000066 -
Power contactor,
AC switching