

Single Pack BD1.4F-AUTO.3 12V DC PM

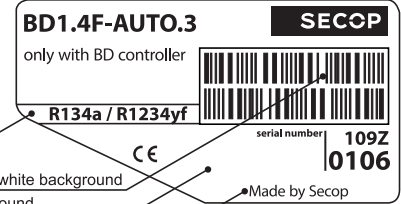
Single pack code number: **195B3449**

| Position | Title | Code | Amount |
|----------|--|----------|--------|
| 1 | Compressor BD1.4F | 109Z0106 | 1 |
| 2 | Electronic unit 12V DC | 101N1001 | 1 |
| 3 | Bolt joint for one compressor M6 ø16mm | 118-1917 | 1 |

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BD1.4F-AUTO.3 Direct Current Compressor R134a, R1234yf 12V DC



General

| | |
|---------------------------------------|----------------------------|
| Code number (without electronic unit) | 109Z0106 |
| Electronic unit - Automotive | 101N1000, 30 pcs: 101N1001 |
| Electronic unit - Automotive | 101N1010, 30 pcs: 101N1011 |
| Approvals | - |
| Compressors on pallet | 180 |

Application

| | |
|---|-----------|
| Application | LBP/MBP |
| Evaporating temperature °C | -25 to 5 |
| Voltage range VDC | 8.5 - 17 |
| Max. condensing temperature continuous (short) °C | 60 (70) |
| Max. winding temperature continuous (short) °C | 125 (135) |

Cooling requirements

| Application | LBP | MBP | HBP |
|-------------|-----|-----|-----|
| 32°C | S | S | - |
| 38°C | S | S | - |
| 43°C | S | S | - |

Remarks on application:
 - New generation with optimized noise level
 - New generation also released for R1234yf

Motor

| | | |
|--------------------------------------|--------------------------------|-------|
| Motor type | permanent magnet, brushless DC | |
| Speed rpm | | 3,000 |
| Resistance, all 3 windings (25°C) mΩ | | 370 |

Design

| | |
|---|------------------|
| Displacement cm ³ | 1.41 |
| Oil quantity (type) cm ³ | 75 (polyolester) |
| Maximum refrigerant charge g | 70 |
| Free gas volume in compressor cm ³ | 500 |
| Weight - Compressor/Electronic unit kg | 2.1/0.17 |

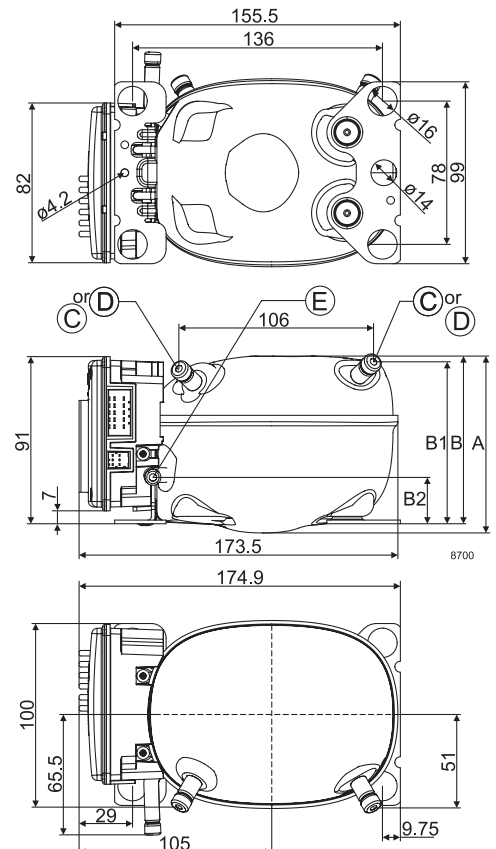
Standard battery protection settings (refer to 101N1000 Instructions for optional settings)

| Voltage | Min. value | Default | Max. value |
|------------------------------|------------|---------|------------|
| Cut out (0.1 steps) VDC | 8.5 | 8.5 | 17 |
| Cut in diff. (0.1 steps) VDC | 0.5 | 0.5 | 8 |

Dimensions

| | | |
|--|--------------------|---------------------------|
| Height mm | A | 96.25 |
| | B | 91.25 |
| | B1 | 88.00 |
| | B2 | 25.20 |
| Suction connector location/I.D. mm angle | C | 6.2 25° |
| | material comment | Cu-plated steel Al cap |
| Process connector location/I.D. mm angle | D | 6.2 25° |
| | material comment | Cu-plated steel Al cap |
| Discharge connector location/I.D. mm angle | E | 5.0 0° |
| | material comment | Cu-plated steel Al cap |
| Connector tolerance I.D. mm | | ±0.09, on 5.0 +0.12/+0.20 |
| Remarks | | |

- S = Static cooling normally sufficient
- O = Oil cooling
- F₁ = Fan cooling 1.5 m/s (compressor compartment temperature equal to ambient temperature)
- F₂ = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficient
- = not applicable in this area



Performance Data with Refrigerant R134a & R1234yf

EN 12900 Household (CECOMAF), R134a

| | | | | | | | | | |
|--------------------|------|-------|------|------|------|------|------|------|-------|
| Evap. temp. in °C | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | 5 |
| Capacity in W | 16.1 | 19.2 | 25.7 | 37.4 | 51.2 | 61.5 | 67.1 | 85.2 | 105.4 |
| Power cons. in W | 24.1 | 25.7 | 29.0 | 34.1 | 39.3 | 42.9 | 44.7 | 50.3 | 56.0 |
| Current cons. in A | 1.84 | 1.96 | 2.20 | 2.59 | 2.99 | 3.26 | 3.40 | 3.84 | 4.29 |
| COP in W/W | 0.67 | 0.74 | 0.89 | 1.10 | 1.30 | 1.43 | 1.50 | 1.69 | 1.88 |

EN 12900 Household (CECOMAF), R1234yf

| | | | | | | | | | |
|--------------------|------|-------|------|------|------|------|------|------|------|
| Evap. temp. in °C | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | 5 |
| Capacity in W | 17.4 | 20.5 | 27.2 | 38.8 | 52.0 | 61.5 | 66.7 | 82.7 | 99.9 |
| Power cons. in W | 26.5 | 28.2 | 31.4 | 36.3 | 41.1 | 44.3 | 45.9 | 50.6 | 55.2 |
| Current cons. in A | 2.02 | 2.15 | 2.39 | 2.76 | 3.13 | 3.37 | 3.50 | 3.86 | 4.22 |
| COP in W/W | 0.66 | 0.73 | 0.87 | 1.07 | 1.26 | 1.39 | 1.45 | 1.63 | 1.81 |

ASHRAE LBP, R134a

| | | | | | | | | | |
|--------------------|------|-------|------|------|------|------|------|-------|-------|
| Evap. temp. in °C | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | 5 |
| Capacity in W | 20.2 | 23.9 | 32.0 | 46.5 | 63.7 | 76.4 | 83.5 | 106.0 | 131.3 |
| Power cons. in W | 24.0 | 25.7 | 29.0 | 34.0 | 39.2 | 42.8 | 44.6 | 50.1 | 55.8 |
| Current cons. in A | 1.84 | 1.96 | 2.20 | 2.59 | 2.98 | 3.25 | 3.40 | 3.82 | 4.27 |
| COP in W/W | 0.84 | 0.93 | 1.11 | 1.37 | 1.62 | 1.79 | 1.87 | 2.12 | 2.35 |

ASHRAE LBP, R1234yf

| | | | | | | | | | |
|--------------------|------|-------|------|------|------|------|------|-------|-------|
| Evap. temp. in °C | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | 5 |
| Capacity in W | 22.7 | 26.8 | 35.4 | 50.4 | 67.5 | 80.0 | 86.7 | 107.7 | 130.4 |
| Power cons. in W | 26.4 | 28.1 | 31.3 | 36.2 | 41.0 | 44.1 | 45.7 | 50.4 | 54.9 |
| Current cons. in A | 2.37 | 2.53 | 2.85 | 3.34 | 3.83 | 4.16 | 4.33 | 4.81 | 5.29 |
| COP in W/W | 0.93 | 1.02 | 1.20 | 1.45 | 1.69 | 1.84 | 1.92 | 2.13 | 2.32 |

| Test conditions | EN 12900/CECOMAF | ASHRAE LBP |
|-------------------------|------------------|------------|
| Condensing temperature | 55°C | 54.4°C |
| Ambient temperature | 32°C | 32°C |
| Suction gas temperature | 32°C | 32°C |
| Liquid temperature | no subcooling | 32°C |

Operational errors

| Error code | Error type |
|------------|--|
| | Can be read out in the software TOOL4COOL® |
| 7 | Communication failure |
| 6 | Thermostat failure (If the NTC thermistor is short-circuit or has no connection, the electronic unit will enter manual mode). |
| 5 | Thermal cut-out of electronic unit (If the refrigeration system has been too heavily loaded, or if the ambient temperature is high, the electronic unit will run too hot). |
| 4 | Minimum motor speed error (If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 1,850 rpm). |
| 3 | Motor start error (The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)). |
| 2 | Fan over-current cut-out (The fan loads the electronic unit with more than 0.65A _{peak}). |
| 1 | Battery protection cut-out (The voltage is outside the cut-out setting). |

Accessories for BD1.4F-AUTO.3

| Mounting | Code number |
|--|-------------|
| Bolt joint for one compressor Ø: 16 mm | 118-1917 |
| Bolt joint in quantities Ø: 16 mm | 118-1918 |
| Snap-on in quantities Ø: 16 mm | 118-1919 |
| One Wire/LIN gateway | 105N9501 |
| Not deliverable from Secop | |
| Automobile fuse DIN 7258 | 15A |

NTC Temperature Sensors Software-Setup

Power: -12V
+
DI
Dim
Com

S1
C
S2
F+
F-

8704-2

Mechanical Temperature Sensor Hardware-Setup

Power: -12V
+
DI
Dim
Com

S1
C
S2
F+
F-

Resistors

| Marking | Value [Ω] | Function |
|---------|------------------|--------------------|
| R1 | see Instructions | battery protection |
| R2 | 750 | resistor LED 1 |
| R3 | 750 | resistor LED 2 |
| R4 | 1500 | coding resistor S1 |
| R5 | 330 | coding resistor S2 |

Connectors (Tyco Electronics)

| Code no | Male | Female | Crimp |
|---------|-----------|-------------|-------------|
| Power | 178305-5 | 178289-5 | 1-175218-20 |
| MMI | 1376136-1 | 1-1318119-3 | 1-318108-1 |

Wire Dimensions DC

| Cross section [mm²] | Size | | Max. length* 12V operation | |
|---------------------|-------------|-----|----------------------------|--|
| | AWG [Gauge] | [m] | [ft.] | |
| 2.5 | 12 | 2.5 | 8 | |
| 4 | 12 | 4 | 13 | |
| 6 | 10 | 6 | 20 | |
| 10 | 8 | 10 | 33 | |

*Length between battery and electronic unit

MMI

D1
D2
D3
Sw1
Sw2
C

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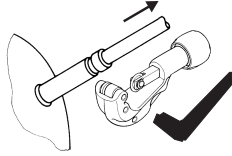
Instructions for Electronic Units
are available for download on
www.secop.com



BD Compressors



Service/Repair



BD Nano



! max. 150°C/302°F !
at socket

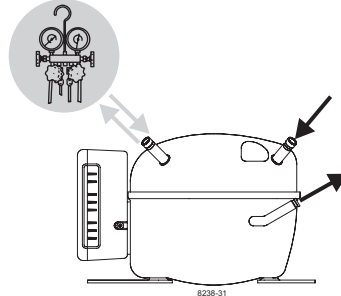
brazing solder: silver with flux

Do not heat up the bottom of the discharge connector directly.
Do not braze longer than 10 seconds and wait for 5 minutes for the next soldering attempt (Product Bulletin DES.N.101.M1).

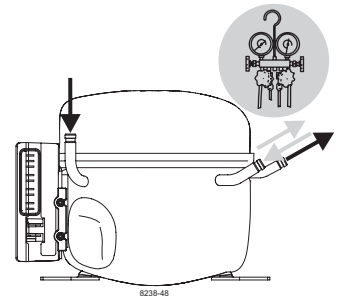
BD Micro



BD P-Housing



BD T-Housing



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