

Single Pack BD220CL 12V DC PM

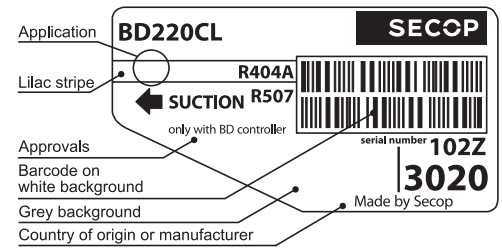
Single pack code number: **195B4214**

| Position | Title | Code | Amount |
|----------|--|----------|--------|
| 1 | Compressor BD220CL | 102Z3020 | 1 |
| 2 | Electronic unit 12V DC | 101N0830 | 1 |
| 3 | Bolt joint for one compressor M6 ø16mm | 118-1917 | 1 |

Secop GmbH • Lise-Meitner-Straße 29 • 24941 Flensburg, Germany • Tel: +49 461 4941 0 • www.secop.com

Secop accepts no responsibility for possible errors in catalogs, brochures, and other printed material. Secop reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequent changes being necessary to specifications already agreed. All trademarks in this material are the property of the respective companies. Secop and the Secop logotype are trademarks of Secop GmbH. All rights reserved.

BD220CL Direct Current Compressor R404A/R507 12V DC - with 101N08xx Series Controllers



General

| | |
|---|----------------------------|
| Code number (without electronic units) | 102Z3020 |
| Compressor module | 101N0800, 30 pcs: 101N0801 |
| Application module | 101N0820, 30 pcs: 101N0821 |
| Alternative (one interface only): Electronic Unit (no fan connection/no twin option) | 101N0830, 30 pcs: 101N0831 |
| Approvals | - |
| Compressors on pallet | 125 |

Application

| | |
|---|-----------|
| Application | LBP |
| Evaporating temperature °C | -45 to -5 |
| Voltage range VDC | 9.6 - 17 |
| Max. condensing temperature continuous (short) °C | 50 (60) |
| Max. winding temperature continuous (short) °C | 125 (135) |

Cooling requirements

| Application | LBP | MBP | HBP |
|-------------|----------------|-----|-----|
| 32°C | F ₁ | - | - |
| 38°C | F ₁ | - | - |
| 43°C | F ₁ | - | - |

Remarks on application:
- evaporator fan max. 200W
- condenser fan max. 100W

Motor

| | |
|-------------------------------------|----------------|
| Motor type | variable speed |
| Resistance, all 3 windings (25°C) Ω | 0.1 |

Design

| | |
|---|-----------------------------|
| Displacement cm ³ | 3.86 |
| Oil quantity (type) cm ³ | 280 (polyolester) |
| Maximum refrigerant charge g | 400 |
| Free gas volume in compressor cm ³ | 1690 |
| Weight - Compressor/Electronic unit kg | 7.9 / 0.33 / 0.28 (101N820) |

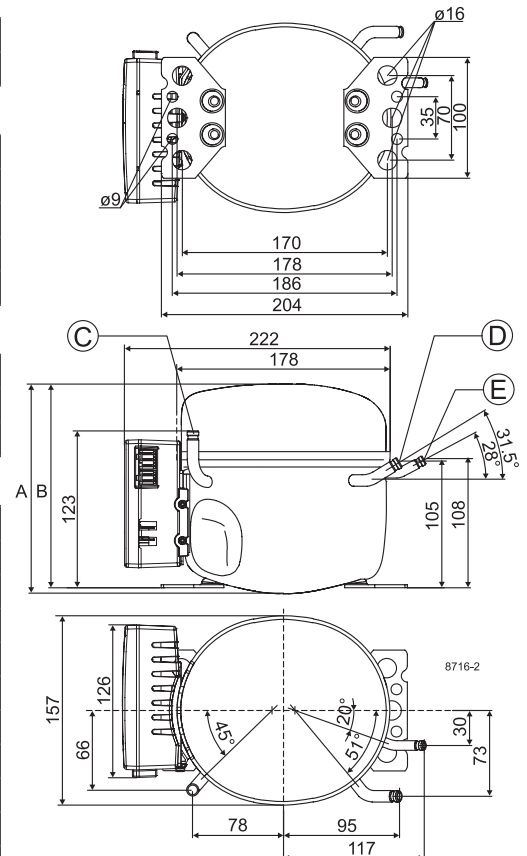
Battery protection settings

| Voltage | Min. value | Default | Max. value |
|------------------------------|------------|---------|------------|
| Cut out (0.1 steps) VDC | 9.6 | 10.4 | 17 |
| Cut in diff. (0.1 steps) VDC | 0.5 | 1.3 | 10 |

Dimensions

| Height | mm | A | 173 |
|---------------------|--------------------------|----|---------------------------|
| | | B | 169 |
| | | B1 | - |
| | | B2 | - |
| Suction connector | location/I.D. mm angle | C | 6.2 90° |
| | material comment | | Cu-plated steel Al cap |
| Process connector | location/I.D. mm angle | D | 6.2 31.5° |
| | material comment | | Cu-plated steel Al cap |
| Discharge connector | location/I.D. mm angle | E | 5.0 28° |
| | material comment | | Cu-plated steel Al cap |
| Connector tolerance | I.D. mm | | ±0.09, on 5.0 +0.12/+0.20 |

- 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



| Capacity (EN 12900 Household/CECOMAF) | | | | | | | | | | | | 12V DC, fan cooling F ₁ | | | | | | | | | | | | watt | | |
|---------------------------------------|------|------|------|-----|-----|-------|-----|-----|-----|------|-----|------------------------------------|----------|-----|-----|-----|-----|-----|-------|-----|-----|-----|------|------|---|--|
| rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | |
| 2,500 | 26.4 | 47.1 | 71.9 | 101 | 136 | 149 | 177 | 224 | 278 | 318 | 340 | | 2,500 | 31 | 55 | 83 | 117 | 158 | 173 | 205 | 260 | 323 | 370 | 396 | | |
| 3,000 | 31.4 | 56.0 | 85.5 | 121 | 162 | 178 | 210 | 266 | 331 | 379 | 405 | | 3,000 | 36 | 65 | 99 | 140 | 188 | 206 | 244 | 310 | 385 | 441 | 472 | | |
| 3,500 | 36.3 | 64.9 | 99.2 | 140 | 188 | 206 | 244 | 309 | 384 | 439 | 470 | | 3,500 | 42 | 75 | 115 | 162 | 218 | 239 | 284 | 360 | 447 | 512 | 547 | | |
| 4,000 | 40.8 | 73.1 | 112 | 158 | 212 | 232 | 275 | 349 | 433 | 495 | 530 | | 4,000 | 47 | 85 | 130 | 183 | 246 | 270 | 320 | 405 | 504 | 577 | 617 | | |

| Capacity (ASHRAE LBP) | | | | | | | | | | | | 12V DC, fan cooling F ₁ | | | | | | | | | | | | watt | | |
|-----------------------|-----|-----|-----|-----|-----|-------|-----|-----|-----|------|-----|------------------------------------|----------|-----|-----|-----|-----|-----|-------|-----|-----|-----|------|------|---|--|
| rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | |
| 2,500 | 31 | 55 | 83 | 117 | 158 | 173 | 205 | 260 | 323 | 370 | 396 | | 2,500 | 31 | 55 | 83 | 117 | 158 | 173 | 205 | 260 | 323 | 370 | 396 | | |
| 3,000 | 36 | 65 | 99 | 140 | 188 | 206 | 244 | 310 | 385 | 441 | 472 | | 3,000 | 36 | 65 | 99 | 140 | 188 | 206 | 244 | 310 | 385 | 441 | 472 | | |
| 3,500 | 42 | 75 | 115 | 162 | 218 | 239 | 284 | 360 | 447 | 512 | 547 | | 3,500 | 42 | 75 | 115 | 162 | 218 | 239 | 284 | 360 | 447 | 512 | 547 | | |
| 4,000 | 47 | 85 | 130 | 183 | 246 | 270 | 320 | 405 | 504 | 577 | 617 | | 4,000 | 47 | 85 | 130 | 183 | 246 | 270 | 320 | 405 | 504 | 577 | 617 | | |

| Power consumption | | | | | | | | | | | | 12V DC, fan cooling F ₁ | | | | | | | | | | | | watt | | |
|-------------------|------|------|------|-----|-----|-------|-----|-----|-----|------|-----|------------------------------------|----------|------|------|------|-----|-----|-------|-----|-----|-----|------|------|---|--|
| rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | |
| 2,500 | 65.2 | 82.8 | 98.9 | 114 | 129 | 133 | 143 | 158 | 174 | 185 | 191 | | 2,500 | 65.2 | 82.8 | 98.9 | 114 | 129 | 133 | 143 | 158 | 174 | 185 | 191 | | |
| 3,000 | 75.2 | 96.0 | 115 | 134 | 152 | 158 | 170 | 190 | 210 | 225 | 233 | | 3,000 | 75.2 | 96.0 | 115 | 134 | 152 | 158 | 170 | 190 | 210 | 225 | 233 | | |
| 3,500 | 84.3 | 108 | 131 | 152 | 174 | 181 | 196 | 219 | 245 | 263 | 272 | | 3,500 | 84.3 | 108 | 131 | 152 | 174 | 181 | 196 | 219 | 245 | 263 | 272 | | |
| 4,000 | 94.3 | 121 | 147 | 172 | 197 | 206 | 223 | 251 | 281 | 303 | 314 | | 4,000 | 94.3 | 121 | 147 | 172 | 197 | 206 | 223 | 251 | 281 | 303 | 314 | | |

| Current consumption | | | | | | | | | | | | 12V DC, fan cooling F ₁ | | | | | | | | | | | | A | | |
|---------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------------------------------------|----------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|--|
| rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | |
| 2,500 | 5.43 | 6.90 | 8.24 | 9.50 | 10.71 | 11.12 | 11.92 | 13.16 | 14.48 | 15.40 | 15.90 | | 2,500 | 5.43 | 6.90 | 8.24 | 9.50 | 10.71 | 11.12 | 11.92 | 13.16 | 14.48 | 15.40 | 15.90 | | |
| 3,000 | 6.27 | 8.00 | 9.62 | 11.16 | 12.67 | 13.19 | 14.20 | 15.81 | 17.53 | 18.75 | 19.42 | | 3,000 | 6.27 | 8.00 | 9.62 | 11.16 | 12.67 | 13.19 | 14.20 | 15.81 | 17.53 | 18.75 | 19.42 | | |
| 3,500 | 7.03 | 9.02 | 10.89 | 12.69 | 14.48 | 15.10 | 16.32 | 18.27 | 20.38 | 21.89 | 22.71 | | 3,500 | 7.03 | 9.02 | 10.89 | 12.69 | 14.48 | 15.10 | 16.32 | 18.27 | 20.38 | 21.89 | 22.71 | | |
| 4,000 | 7.86 | 10.12 | 12.26 | 14.34 | 16.43 | 17.15 | 18.59 | 20.90 | 23.41 | 25.22 | 26.20 | | 4,000 | 7.86 | 10.12 | 12.26 | 14.34 | 16.43 | 17.15 | 18.59 | 20.90 | 23.41 | 25.22 | 26.20 | | |

| COP (EN 12900 Household/CECOMAF) | | | | | | | | | | | | 12V DC, fan cooling F ₁ | | | | | | | | | | | | W/W | | |
|----------------------------------|------|------|------|------|------|-------|------|------|------|------|------|------------------------------------|----------|------|------|------|------|------|-------|------|------|------|------|------|---|--|
| rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | |
| 2,500 | 0.41 | 0.57 | 0.73 | 0.89 | 1.06 | 1.12 | 1.23 | 1.42 | 1.60 | 1.72 | 1.78 | | 2,500 | 0.41 | 0.57 | 0.73 | 0.89 | 1.06 | 1.12 | 1.23 | 1.42 | 1.60 | 1.72 | 1.78 | | |
| 3,000 | 0.42 | 0.58 | 0.74 | 0.90 | 1.07 | 1.12 | 1.23 | 1.40 | 1.57 | 1.68 | 1.74 | | 3,000 | 0.42 | 0.58 | 0.74 | 0.90 | 1.07 | 1.12 | 1.23 | 1.40 | 1.57 | 1.68 | 1.74 | | |
| 3,500 | 0.43 | 0.60 | 0.76 | 0.92 | 1.08 | 1.14 | 1.25 | 1.41 | 1.57 | 1.67 | 1.72 | | 3,500 | 0.43 | 0.60 | 0.76 | 0.92 | 1.08 | 1.14 | 1.25 | 1.41 | 1.57 | 1.67 | 1.72 | | |
| 4,000 | 0.43 | 0.60 | 0.76 | 0.92 | 1.08 | 1.13 | 1.23 | 1.39 | 1.54 | 1.64 | 1.68 | | 4,000 | 0.43 | 0.60 | 0.76 | 0.92 | 1.08 | 1.13 | 1.23 | 1.39 | 1.54 | 1.64 | 1.68 | | |

| COP (ASHRAE LBP) | | | | | | | | | | | | 12V DC, fan cooling F ₁ | | | | | | | | | | | | W/W | | |
|------------------|------|------|------|------|------|-------|------|------|------|------|------|------------------------------------|----------|------|------|------|------|------|-------|------|------|------|------|------|---|--|
| rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | rpm \ °C | -45 | -40 | -35 | -30 | -25 | -23.3 | -20 | -15 | -10 | -6.7 | -5 | 0 | |
| 2,500 | 0.47 | 0.66 | 0.84 | 1.03 | 1.23 | 1.30 | 1.43 | 1.65 | 1.86 | 2.00 | 2.07 | | 2,500 | 0.47 | 0.66 | 0.84 | 1.03 | 1.23 | 1.30 | 1.43 | 1.65 | 1.86 | 2.00 | 2.07 | | |
| 3,000 | 0.48 | 0.68 | 0.86 | 1.05 | 1.24 | 1.30 | 1.43 | 1.63 | 1.83 | 1.96 | 2.02 | | 3,000 | 0.48 | 0.68 | 0.86 | 1.05 | 1.24 | 1.30 | 1.43 | 1.63 | 1.83 | 1.96 | 2.02 | | |
| 3,500 | 0.50 | 0.69 | 0.88 | 1.07 | 1.26 | 1.32 | 1.45 | 1.64 | 1.83 | 1.95 | 2.01 | | 3,500 | 0.50 | 0.69 | 0.88 | 1.07 | 1.26 | 1.32 | 1.45 | 1.64 | 1.83 | 1.95 | 2.01 | | |
| 4,000 | 0.50 | 0.70 | 0.88 | 1.06 | 1.25 | 1.31 | 1.43 | 1.62 | 1.79 | 1.91 | 1.96 | | 4,000 | 0.50 | 0.70 | 0.88 | 1.06 | 1.25 | 1.31 | 1.43 | 1.62 | 1.79 | 1.91 | 1.96 | | |

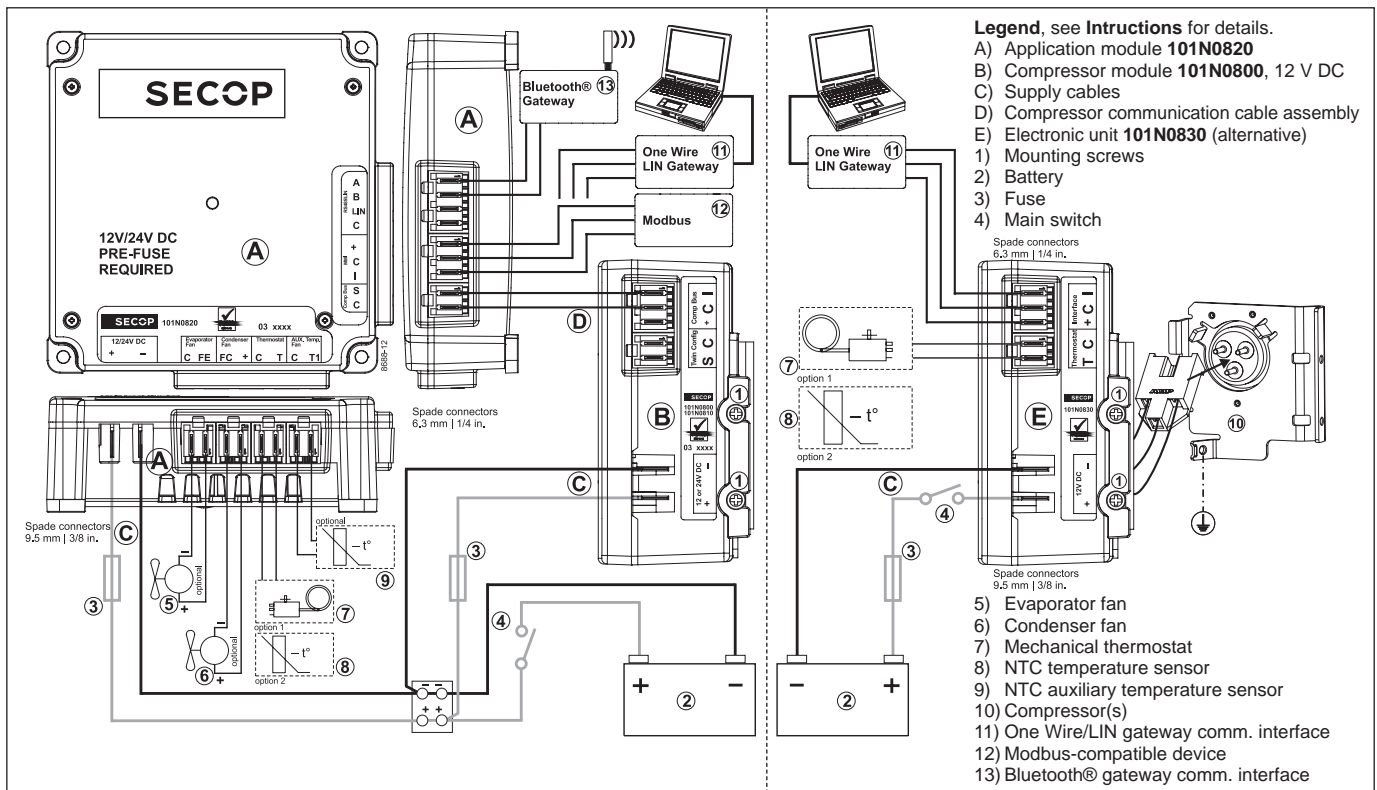
| Test conditions | | EN 12900/CECOMAF | ASHRAE LBP |
|-------------------------|--|------------------|------------|
| Condensing temperature | | 45°C | 45°C |
| Ambient temperature | | 32°C | 32°C |
| Suction gas temperature | | 32°C | 32°C |
| Liquid temperature | | no subcooling | 32°C |

| Operational errors | |
|--------------------|--|
| Error code | Error type |
| | Can be read out in the software TOOL4COOL® |
| 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). |
| 2 | Fan over-current cut-out (The fan loads the electronic unit with too high current). |
| 1 | Battery protection cut-out (The voltage is outside the cut-out setting). |

| Accessories for BD220CL | |
|-------------------------------|-------------------|
| 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 |

| Electrical (cables, sensors, etc.) | Code number | |
|--|-------------|--------------------|
| | Single pack | I - Pack |
| One Wire/LIN gateway communication cable | 105N9501 | - |
| Bluetooth® gateway communication cable | 105N9502 | - |
| Temperature sensor 470 mm | 105N9612 | 105N9613, 200 pcs. |
| Temperature sensor 1000 mm | 105N9614 | 105N9615, 100 pcs. |
| Temperature sensor 1500 mm | 105N9616 | 105N9617, 100 pcs. |
| Comm. cable, 1500 mm | - | 105N9553, 80 pcs. |
| Comm. cable, 3000 mm | - | 105N9554, 45 pcs. |
| Display cable, 1500 mm | - | 105N9557, 65 pcs. |
| Display cable, 3000 mm | - | 105N9558, 35 pcs. |

| | |
|-----------------------------------|--------------------|
| Not deliverable from Secop | |
| Slow-blow fuse compressor module | 60A |
| Slow-blow fuse application module | 30A |
| Main switch | rated to min. 100A |



Secop accepts no responsibility for possible errors in catalogs, brochures, and other printed material. Secop reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without consequential changes being necessary to specifications already agreed. All trademarks in this material are the property of the respective companies. Secop and the Secop logotype are trademarks of Secop GmbH. All rights reserved. www.secop.com



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



BD Compressors



Service/Repair



BD Nano



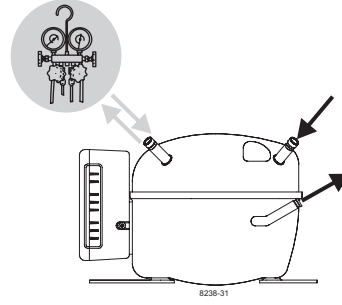
**! max. 150°C/302°F !
at socket**
brazing solder: silver with flux

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



Secop accepts no responsibility for possible errors in catalogs, brochures, and other printed material. Secop reserves the right to alter its products without notice. This also applies to products already on order provided that such alterations can be made without subsequential changes being necessary to specifications already agreed. All trademarks in this material are the property of the respective companies. Secop and the Secop logotype are trademarks of Secop GmbH. All rights reserved. www.secop.com