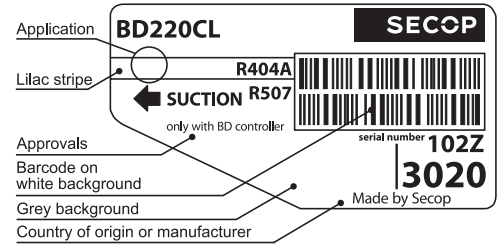


## BD220CL Direct Current Compressor R404A/R507 12V DC - with 101N08xx Series Controllers



### General

|   |                            |
|---|----------------------------|
| Code number (without electronic units)  | 102Z3020                   |
| Compressor module   | 101N0800, 30 pcs: 101N0801 |
| Application module  | 101N0820, 24 pcs: 101N0821 |
| Alternative (one interface only):<br>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 <sub>1</sub> | -   | -   |
| 38°C        | F <sub>1</sub> | -   | -   |
| 43°C        | F <sub>1</sub> | -   | -   |

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

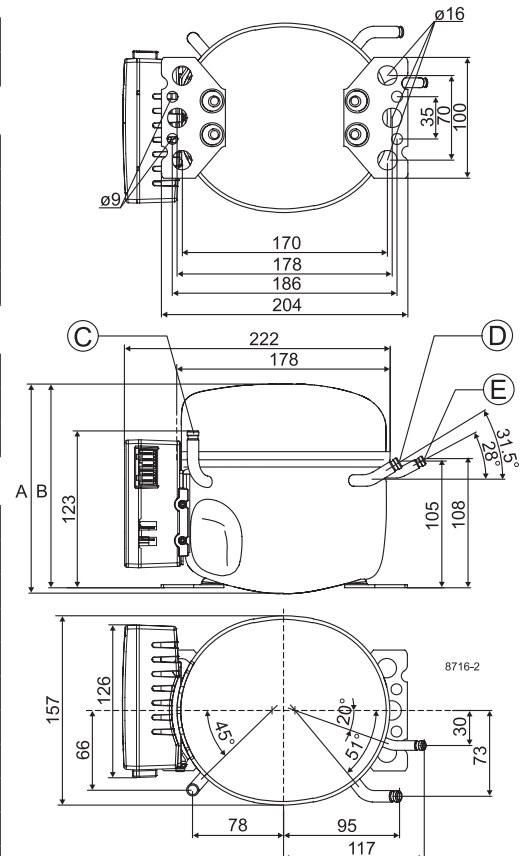
### Battery protection settings

| 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
- F<sub>1</sub> = Fan cooling 1.5 m/s  
(compressor compartment temperature equal to ambient temperature)
- F<sub>2</sub> = Fan cooling 3.0 m/s necessary
- SG = Suction gas cooling normally sufficient
- = not applicable in this area



| Capacity (EN 12900 Household/CECOMAF) |      |      |      |     |     |       |     |     |     |      |     |   |
|---------------------------------------|------|------|------|-----|-----|-------|-----|-----|-----|------|-----|---|
| 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 |   |
| 3,000                                 | 31.4 | 56.0 | 85.5 | 121 | 162 | 178   | 210 | 266 | 331 | 379  | 405 |   |
| 3,500                                 | 36.3 | 64.9 | 99.2 | 140 | 188 | 206   | 244 | 309 | 384 | 439  | 470 |   |
| 4,000                                 | 40.8 | 73.1 | 112  | 158 | 212 | 232   | 275 | 349 | 433 | 495  | 530 |   |

| Capacity (ASHRAE LBP) |     |     |     |     |     |       |     |     |     |      |     |   |
|-----------------------|-----|-----|-----|-----|-----|-------|-----|-----|-----|------|-----|---|
| 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 |   |
| 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 |   |
| 4,000                 | 47  | 85  | 130 | 183 | 246 | 270   | 320 | 405 | 504 | 577  | 617 |   |

| Power consumption |      |      |      |     |     |       |     |     |     |      |     |   |
|-------------------|------|------|------|-----|-----|-------|-----|-----|-----|------|-----|---|
| 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 |   |
| 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 |   |
| 4,000             | 94.3 | 121  | 147  | 172 | 197 | 206   | 223 | 251 | 281 | 303  | 314 |   |

| Current consumption |      |       |       |       |       |       |       |       |       |       |       |   |
|---------------------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---|
| 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 |   |
| 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 |   |
| 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) |      |      |      |      |      |       |      |      |      |      |      |   |
|----------------------------------|------|------|------|------|------|-------|------|------|------|------|------|---|
| 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 |   |
| 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 |   |
| 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) |      |      |      |      |      |       |      |      |      |      |      |   |
|------------------|------|------|------|------|------|-------|------|------|------|------|------|---|
| 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 |   |
| 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 |   |
| 4,000            | 0.50 | 0.70 | 0.88 | 1.06 | 1.25 | 1.31  | 1.43 | 1.62 | 1.79 | 1.91 | 1.96 |   |

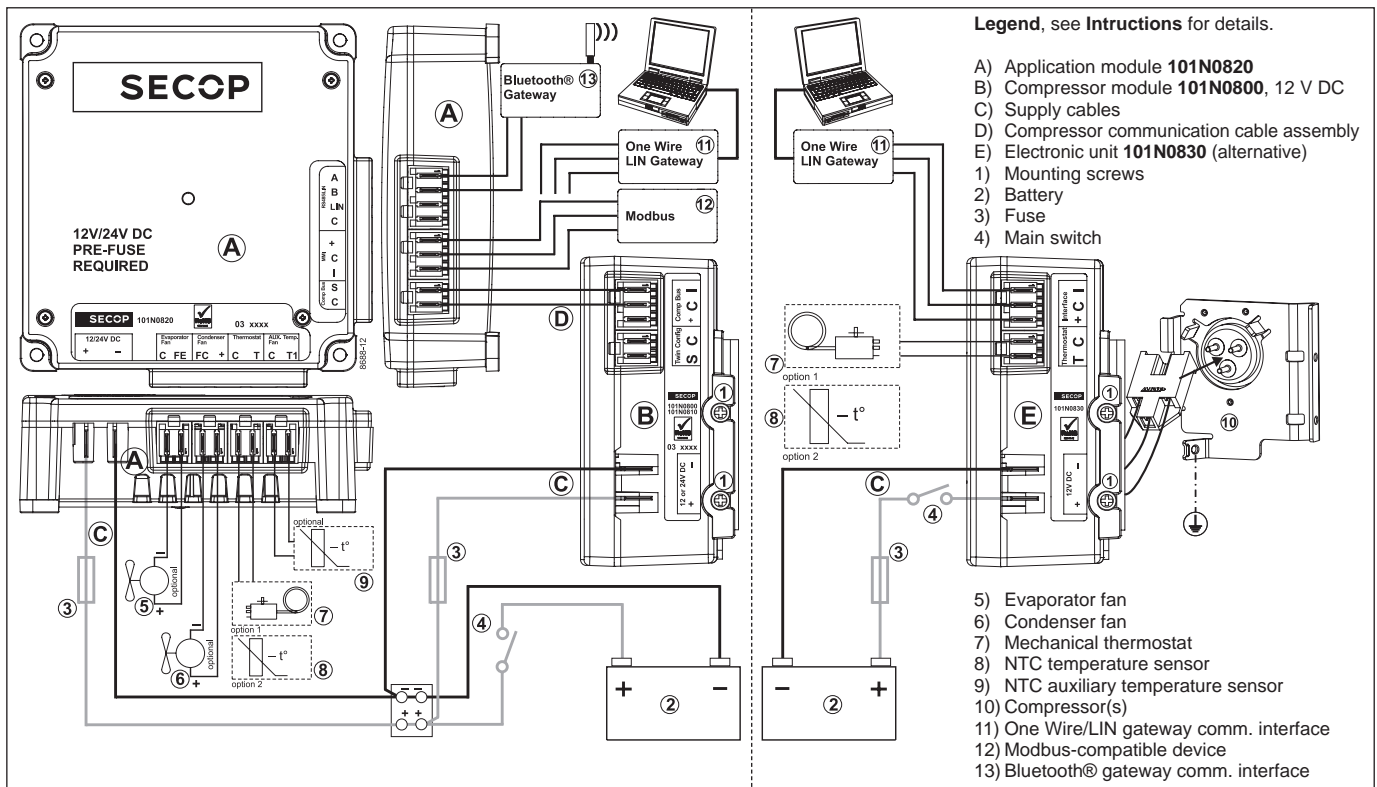
| Test conditions         | EN 12900/CECOMAF | ASHRAE LBP |
|-------------------------|------------------|------------|
| Condensing temperature  | 45°C             | 45°C       |
| Ambient temperature     | 32°C             | 32°C       |
| Suction gas temperature | 32°C             | 32°C       |
|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

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



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