

## BD80F Direct Current Compressor R134a 12/24V DC

### General

Code number (without electronic units)	101Z0280
Electronic unit - High Speed	101N0290, 28 pcs: 101N0291
Approved compressor - electronic unit combinations	refer to <i>Instructions</i> for 101N0290
Additional approvals	e4, C-Tick
Compressors on pallet	150

### Application

Application	LBP
Evaporating temperature °C	-30 to -5
Voltage/max. voltage VDC	9.6 - 17 / 21.3 - 31.5
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	-	-
38°C	S	-	-
43°C	S	-	-
Remarks on application:			

### Motor

Motor type	variable speed
Resistance, all 3 windings (25°C) Ω	1.8

### Design

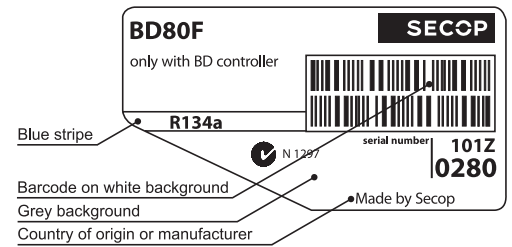
Displacement cm <sup>3</sup>	3.00
Oil quantity (type) cm <sup>3</sup>	150 (polyolester)
Maximum refrigerant charge g	300
Free gas volume in compressor cm <sup>3</sup>	870
Weight - Compressor/Electronic unit kg	4.4/0.32

### Standard battery protection settings (refer to 101N0290 *Instructions* for optional settings)

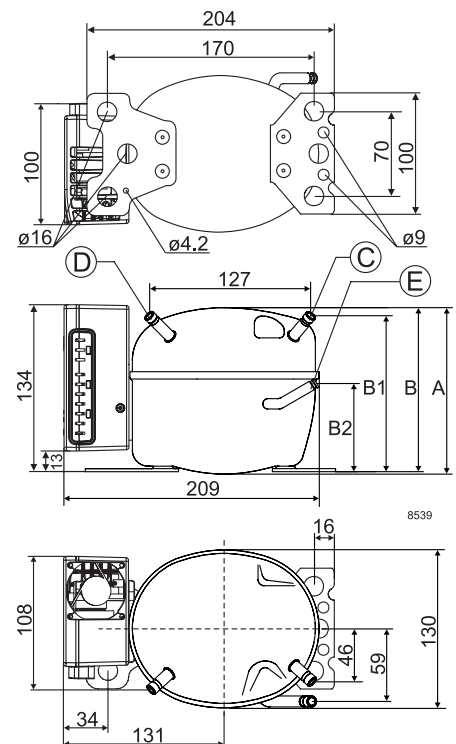
Voltage	12V	24V
Cut out VDC	10.4	22.8
Cut in VDC	11.7	24.2

### Dimensions

Height mm	A	137
	B	135
	B1	128
	B2	73
Suction connector location/I.D. mm   angle	C	6.2   40°
	material   comment	Cu-plated steel   Al cap
Process connector location/I.D. mm   angle	D	6.2   45°
	material   comment	Cu-plated steel   Al cap
Discharge connector location/I.D. mm   angle	E	5.0   21°
	material   comment	Cu-plated steel   Al cap
Connector tolerance I.D. mm	±0.09, on 5.0 +0.12/+0.20	
Remarks:	Clearance between electronic unit and baseplate does not allow the snap-on option for mounting.	



- 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)												12V DC, static cooling			watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15			
2,500	35.3	49.5	55.0	66.6	87.1	112	140								
3,100	41.8	59.0	65.6	79.6	104	133	168								
3,800	49.6	70.5	78.5	95.3	125	159	200								
4,400	54.8	78.0	86.7	105	138	176	221								

Capacity (ASHRAE LBP)												12V DC, static cooling			watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15			
2,500	43.5	61.1	67.8	82.2	108	138	174								
3,100	51.5	72.8	80.9	98.2	129	165	207								
3,800	61.1	87.0	96.8	118	154	197	248								
4,400	67.6	96.1	107	130	170	218	274								

Power consumption												12V DC, static cooling			watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15			
2,500	40.0	50.0	53.4	60.3	71.3	83.1	96								
3,100	48.7	61.2	65.4	73.8	87.0	101	118								
3,800	59.5	75.0	80.2	90.3	106	124	145								
4,400	69.0	87.0	93.0	105	123	144	168								

Current consumption (for 24V applications the following must be halved)												A	
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15	
2,500	3.3	4.2	4.5	5.0	5.9	6.9	8.0						
3,100	4.1	5.1	5.5	6.1	7.2	8.5	9.8						
3,800	5.0	6.3	6.7	7.5	8.9	10.3	12.1						
4,400	5.8	7.2	7.7	8.7	10.3	12.0	14.0						

COP (EN 12900 Household/CECOMAF)												12V DC, static cooling			W/W
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15			
2,500	0.88	0.99	1.03	1.10	1.22	1.34	1.46								
3,100	0.86	0.96	1.00	1.08	1.20	1.31	1.42								
3,800	0.83	0.94	0.98	1.06	1.17	1.28	1.39								
4,400	0.79	0.90	0.93	1.01	1.12	1.22	1.32								

COP (ASHRAE LBP)												12V DC, static cooling			W/W
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15			
2,500	1.09	1.22	1.27	1.36	1.51	1.66	1.81								
3,100	1.06	1.19	1.24	1.33	1.48	1.62	1.76								
3,800	1.03	1.16	1.21	1.30	1.45	1.59	1.71								
4,400	0.98	1.11	1.15	1.24	1.38	1.51	1.63								

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 errors shown by LED (optional)

Error code	Error type
5	<b>Thermal cut-out of electronic unit</b> (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> (If the refrigeration system is too heavily loaded, the motor cannot maintain minimum speed at approximately 2,450 rpm).
3	<b>Motor start error</b> (The rotor is blocked or the differential pressure in the refrigeration system is too high (>5 bar)).
2	<b>Fan over-current cut-out</b> (The fan loads the electronic unit with more than 1A <sub>peak</sub> ).
1	<b>Battery protection cut-out</b> (The voltage is outside the cut-out setting).

### Compressor speed

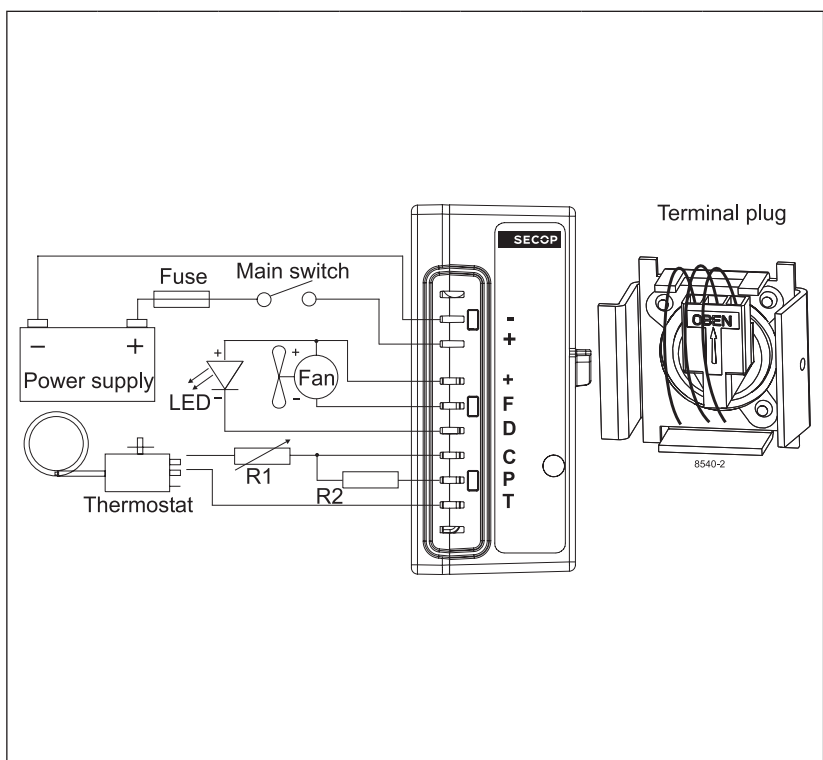
Electronit unit	Resistor (R1) [Ω]	Motor speed	Control circuit current [mA]
Code number	calculated values	[rpm]	
	0	AEO	6
	203	2,500	5
	451	3,100	4
	867	3,800	3
1700	4,400	2	

In AEO (Adaptive Energy Optimizing) speed mode the BD compressor will always adapt its speed to the actual cooling demand.

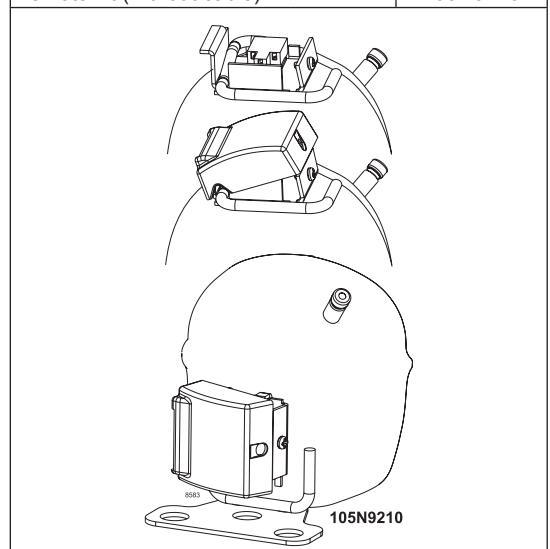
### Wire Dimensions DC

Cross section [mm²]	Size AWG [Gauge]	Max. length* 12V operation		Max. length* 24V operation	
		[m]	[ft.]	[m]	[ft.]
6	10	2.5	8	5	16

\*Length between battery and electronic unit



Accessories for BD80F	Code number
Bolt joint for one compressor Ø:16 mm	118-1917
Bolt joint in quantities Ø:16 mm	118-1918
Remote kit (without cable)	105N9210



Standard automobile fuse	12V: 30A	Not deliverable from Secop
DIN 7258	24V: 15A	
Main switch	min. 30A	

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