

## BD100CN Direct Current Compressor R290 12/24V DC



### General

Code number (without electronic units)	101Z0401
Electronic unit - High Speed	101N0390, 30 pcs: 101N0391
Electronic unit - ULT High Speed	101NULT1, 30 pcs: 101NULT2
Compressors on pallet	150

### Approvals

–
UL / CB



### Application

Application	LBP/MBP
Evaporating temperature °C	-40 to -5 (5)
Voltage/max. voltage VDC	9.6 - 17 / 21.3 - 31.5
Max. condensing temperature continuous (short) °C	55 (65)
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:			

### Motor

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

### Design

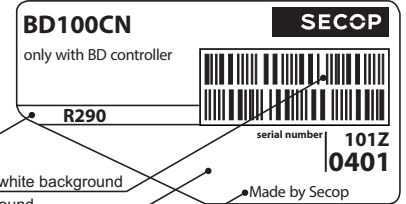
Displacement cm <sup>3</sup>	2.00
Oil quantity (type) cm <sup>3</sup>	150 (polyolester)
Maximum refrigerant charge g	120
Free gas volume in compressor cm <sup>3</sup>	870
Weight - Compressor/Electronic unit kg	4.3/0.32

### Standard battery protection settings (refer to electronic unit 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:		



Red stripe

Barcode on white background

Grey background

Country of origin or manufacturer

S = Static cooling normally sufficient

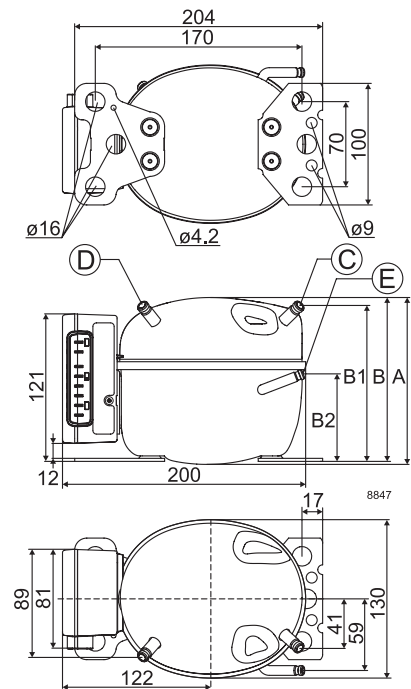
O = Oil cooling

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) 24V DC, static cooling watt												
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	20.2	31.8	50.9	67.6	73.0	83.7	101	121	146	178	217	
3,100	27.2	43.9	64.0	84.1	91.2	106	130	159	194	236	287	
3,800	42.9	58.5	77.0	98.6	107	124	153	185	223	264		
4,400	47.2	61.3	83.4	108	118	137	169	207	250			

Capacity (ASHRAE LBP) 24V DC, static cooling watt												
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	22.5	35.5	56.7	75.4	81.5	93.4	113	135	163	199	243	
3,100	29.3	49.0	71.4	93.8	102	118	145	177	216	264	321	
3,800	47.8	65.2	85.9	110	119	138	170	207	249	296		
4,400	52.7	68.4	93.1	121	131	153	189	231	280			

Power consumption 24V DC, static cooling watt												
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	33.6	38.3	43.3	48.5	50.3	53.8	58.9	63.7	68.1	72.0	75.2	
3,100	36.9	45.5	53.8	61.5	64.1	68.9	75.9	82.7	89.2	95.5	102	
3,800	44.8	55.5	65.7	75.5	78.7	84.7	93.2	101	108	115		
4,400	51.7	65.4	77.8	89.3	93.0	99.9	110	119	129			

Current consumption (for 12V applications the following must be doubled) A												
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	1.26	1.53	1.79	2.03	2.11	2.26	2.47	2.66	2.84	3.00	3.14	
3,100	1.55	1.91	2.25	2.57	2.68	2.88	3.17	3.45	3.72	3.97	4.21	
3,800	2.00	2.37	2.76	3.14	3.27	3.52	3.89	4.22	4.52	4.77		
4,400	2.80	3.03	3.32	3.69	3.82	4.09	4.53	4.96	5.35			

COP (EN 12900 Household/CECOMAF) 24V DC, static cooling W/W												
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	0.60	0.83	1.17	1.39	1.45	1.56	1.72	1.90	2.15	2.47	2.89	
3,100	0.74	0.96	1.19	1.37	1.42	1.53	1.71	1.92	2.17	2.47	2.82	
3,800	0.96	1.05	1.17	1.31	1.36	1.46	1.64	1.83	2.05	2.30		
4,400	0.91	0.94	1.07	1.21	1.26	1.37	1.54	1.73	1.95			

COP (ASHRAE LBP) 24V DC, static cooling W/W												
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2
2,500	0.67	0.93	1.31	1.55	1.62	1.74	1.92	2.13	2.40	2.76	3.23	
3,100	0.79	1.08	1.33	1.52	1.59	1.71	1.91	2.15	2.43	2.76	3.16	
3,800	1.07	1.18	1.31	1.46	1.51	1.63	1.83	2.05	2.30	2.58		
4,400	1.02	1.05	1.20	1.35	1.41	1.53	1.72	1.94	2.18			

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

Accessories for BD100CN	Code number
Bolt joint for one comp.	Ø:16 mm 118-1917
Bolt joint in quantities	Ø:16 mm 118-1918
Snap-on in quantities	Ø:16 mm 118-1919
Remote kit (without cable)	105N9210
One Wire/LIN gateway	105N9518
Automobile fuse, DIN 7258	12V: 30A   24V: 15 A
Main switch	min. 30A Not deliverable from Secop

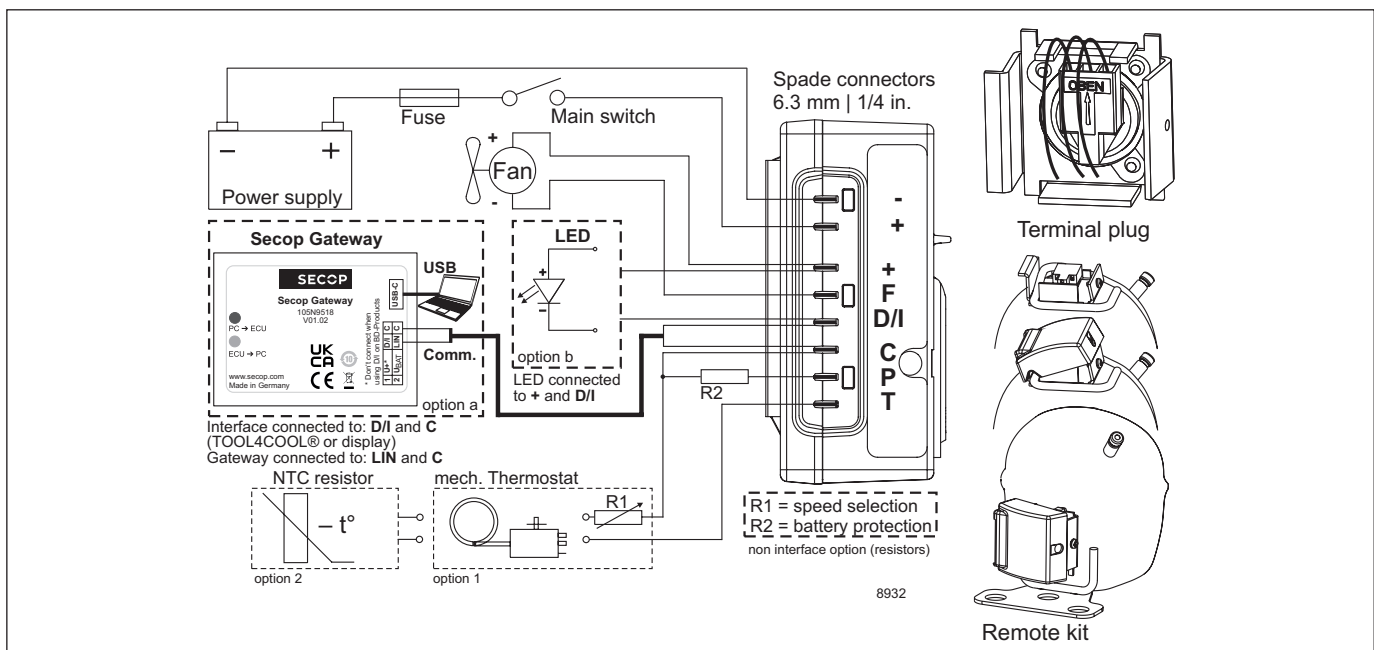
Compressor speed	Resistor (R1) [Ω]	Motor speed
Electronit unit	calculated values	[rpm]
Code number		
101N0390 with AEO	0	AEO
	203	2,500
	451	3,100
101NULT1 with AEO	867	3,800
	1700	4,400

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

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

\*Length between battery and electronic unit

Operational errors	Error type
Error code or LED flashes	Can be read out in the software TOOL4COOL®
6	<b>Thermostat failure</b> (If the NTC thermistor is short-circuit or has no connection).
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 1,850 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>Too many start attempts or fan over current</b> (Too many compressor or fan starts in short time or fan current higher than 0.5A <sub>avg</sub> ).
1	<b>Battery protection cut-out</b> (The voltage is outside the cut-out setting).



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