

BD100CN Direct Current Compressor R290 12/24V DC



General

Code number (without electronic units)	101Z0401
Electronic unit - High Speed	101N0390, 28 pcs: 101N0391
Compressors on pallet	150

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

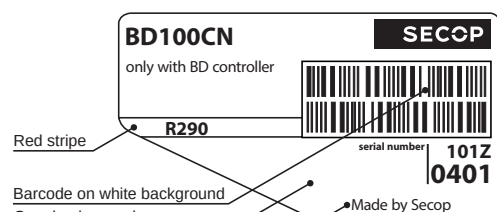
Displacement cm³	2.00
Oil quantity (type) cm³	150 (polyolester)
Maximum refrigerant charge g	120
Free gas volume in compressor cm³	870
Weight - Compressor/Electronic unit kg	4.3/0.32

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

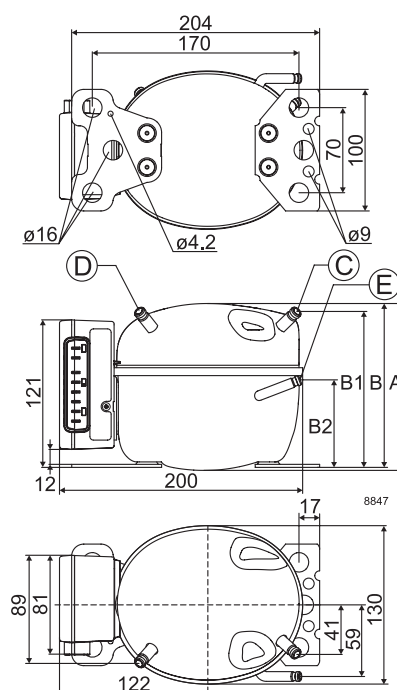
Dimensions

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:			



Yellow warning label

- 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) 24V DC, static cooling watt											
rpm \ °C	-40	-35	-30	-25	-23.3	-20	-15	-10	-5	0	5
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
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
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
2,500	2.51	3.05	3.57	4.05	4.21	4.51	4.93	5.32	5.67	5.99	6.27
3,100	3.10	3.81	4.49	5.14	5.35	5.75	6.34	6.90	7.43	7.94	8.42
3,800	3.99	4.74	5.51	6.28	6.54	7.04	7.77	8.44	9.04	9.54	
4,400	5.64	6.05	6.64	7.37	7.64	8.18	9.05	9.92	10.70		

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
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
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	105N9501
Automobile fuse, DIN 7258	12V: 30A 24V: 15 A
Main switch	min. 30A Not deliverable from Secop

Compressor speed

Electronit unit	Resistor (R1) [Ω]	Motor speed
Code number	calculated values	[rpm]
101N0390 with AEO	0	AEO
	203	2,500
	451	3,100
	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.

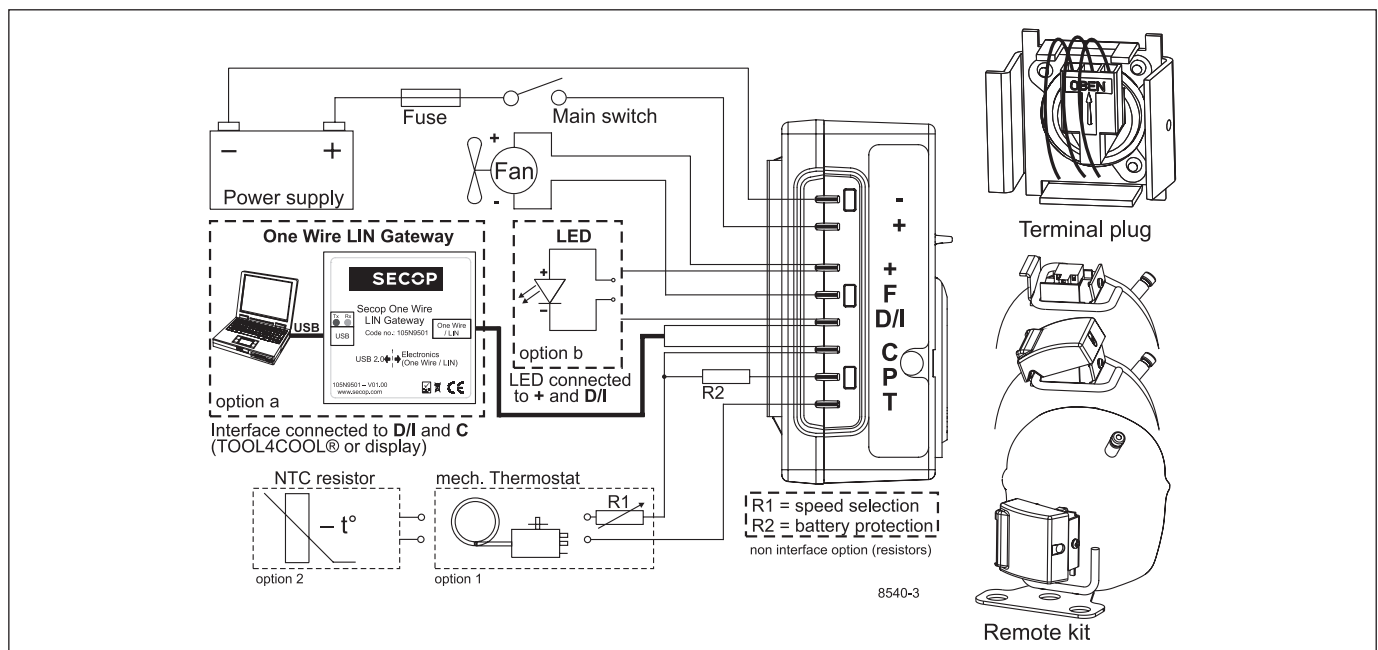
Wire dimensions

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

*Length between battery and electronic unit

Operational errors

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



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