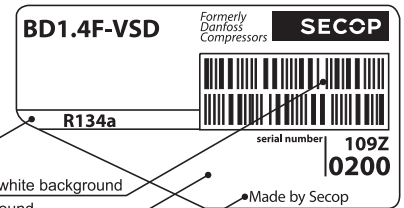


# BD1.4F-VSD Direct Current Compressor R134a 12-24V



Blue stripe  
Barcode on white background  
Grey background  
Country of origin or manufacturer  
R134a  
serial number 109Z0200  
Made by Secop

## General

Code number (without electronic unit)	109Z0200
Electronic unit	101N2100, 30 pcs: 101N2101
Approvals	-
Compressors on pallet	180

## Application

Application	LBP/MBP	
Evaporating temperature °C	-30 to 0	
Voltage range VDC	12 (9.6 - 17) / 24 (19 - 34)	
Max. condensing temperature continuous (short) °C	60 (70)	
Max. winding temperature continuous (short) °C	125 (135)	

- 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

## Cooling requirements

Application	LBP	MBP	HBP
32°C	S	S	-
38°C	S	S	-
43°C	S	S	-

Remarks on application:

## Motor

Motor type	permanet magnet, brushless DC	
Speed rpm	variable speed	
Resistance, all 3 windings (25°C) mΩ	50	

## Design

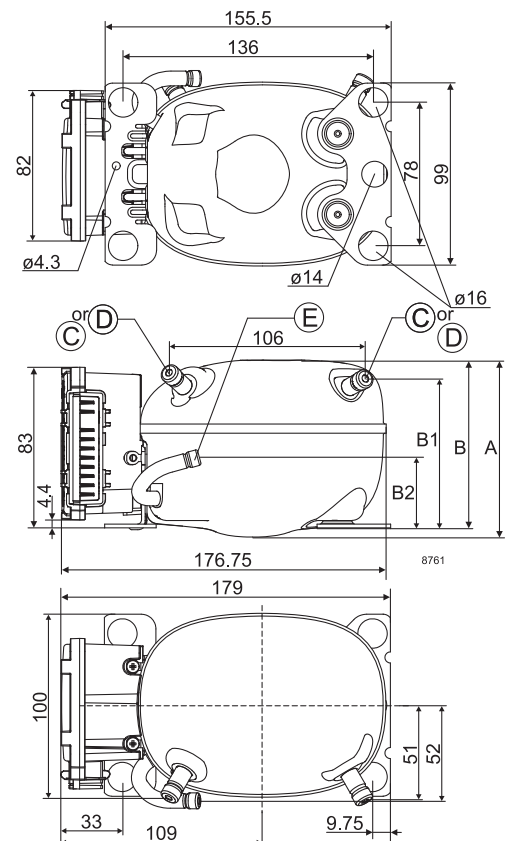
Displacement cm <sup>3</sup>	1.41	
Oil quantity (type) cm <sup>3</sup>	75 (polyolester)	
Maximum refrigerant charge g	150	
Free gas volume in compressor cm <sup>3</sup>	500	
Weight - Compressor/Electronic unit kg	2.1/0.17	

## Standard battery protection settings (refer to 101N2100 Instructions for optional settings)

Voltage (0.1 steps)			Min. value	Default	Max. value
12V	± 0.3V DC, all values	Cut out VDC	9.6	10.4	17
		Cut in diff. VDC	0.5	1.3	10
24V	± 0.3V DC, all values	Cut out VDC	19	21.3	27
		Cut in diff. VDC	0.5	1.3	10

## Dimensions

Height	mm	A	96.25
		B	91.25
		B1	81.00
		B2	38.50
Suction connector	location/I.D. mm   angle	C	6.2   15°
	material   comment	Cu-plated steel   Al cap	
Process connector	location/I.D. mm   angle	D	6.2   25°
	material   comment	Cu-plated steel   Al cap	
Discharge connector	location/I.D. mm   angle	E	5.0   15°
	material   comment	Cu-plated steel   Al cap	
Connector tolerance	I.D. mm	±0.09, on 5.0 +0.12/+0.20	
Remarks			



Capacity (EN 12900 Household/CECOMAF)		12V DC, static cooling								watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	
2,000		9.3	11.0	15.0	22.4	31.4	38.2	42.0	54.3	
2,500	6.9	12.7	15.1	20.4	29.9	41.3	49.9	54.6	69.8	
3,000	8.7	16.1	19.2	25.7	37.4	51.2	61.5	67.1	85.2	
3,500	10.4	19.5	23.1	31.0	44.8	61.0	73.0	79.6	100.6	
4,000	12.1	22.8	27.1	36.2	52.2	70.8	84.5	92.1	115.9	

Capacity (ASHRAE LBP)		12V DC, static cooling								watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	
2,000		11.6	13.8	18.7	27.9	39.1	47.6	52.4	67.7	
2,500	8.6	15.8	18.8	25.3	37.1	51.3	61.9	67.8	86.8	
3,000	11.0	20.2	23.9	32.0	46.5	63.6	76.4	83.5	106.0	
3,500	13.1	24.3	28.8	38.5	55.6	75.7	90.6	98.8	124.9	
4,000	15.4	28.6	33.9	45.1	64.9	88.0	105.0	114.3	144.0	

Power consumption		12V DC, static cooling								watt
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	
2,000		15.7	16.6	18.5	21.7	25.3	28.0	29.4	33.8	
2,500	16.2	19.7	21.0	23.6	27.7	32.2	35.2	36.9	41.9	
3,000	19.3	24.1	25.7	29.0	34.1	39.3	42.9	44.7	50.3	
3,500	22.8	28.7	30.8	34.7	40.8	46.8	50.8	52.9	59.0	
4,000	26.6	33.8	36.2	40.8	47.8	54.7	59.1	61.4	68.1	

Current consumption (for 24V applications the following must be halved)		A							
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0
2,000		1.25	1.33	1.48	1.74	2.02	2.22	2.32	2.65
2,500	1.25	1.53	1.63	1.83	2.15	2.48	2.72	2.84	3.22
3,000	1.49	1.84	1.96	2.20	2.59	2.98	3.25	3.40	3.82
3,500	1.77	2.19	2.34	2.63	3.07	3.53	3.84	4.00	4.47
4,000	2.08	2.58	2.75	3.08	3.59	4.10	4.45	4.63	5.16

COP (EN 12900 Household/CECOMAF)		12V DC, static cooling								W/W
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	
2,000		0.59	0.66	0.81	1.03	1.24	1.37	1.43	1.60	
2,500	0.43	0.64	0.72	0.86	1.08	1.29	1.42	1.48	1.67	
3,000	0.45	0.67	0.74	0.89	1.10	1.30	1.43	1.50	1.69	
3,500	0.46	0.68	0.75	0.89	1.10	1.30	1.44	1.51	1.70	
4,000	0.45	0.68	0.75	0.89	1.09	1.30	1.43	1.50	1.70	

COP (ASHRAE LBP)		12V DC, static cooling								W/W
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0	
2,000		0.74	0.83	1.01	1.29	1.55	1.71	1.79	2.01	
2,500	0.54	0.80	0.89	1.07	1.34	1.60	1.76	1.84	2.08	
3,000	0.57	0.84	0.93	1.11	1.37	1.62	1.79	1.87	2.11	
3,500	0.58	0.85	0.94	1.11	1.36	1.62	1.79	1.87	2.12	
4,000	0.58	0.85	0.94	1.11	1.36	1.61	1.78	1.87	2.12	

### Operational errors (TOOL4COOL® or LED flashes)

Error code or LED flashes	Error type
	Can be read out in the software TOOL4COOL®
6	<b>Thermostat failure</b> (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> (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>Fan over-current cut-out</b> (The fan loads the electronic unit with more than 0.65A <sub>peak</sub> ).
1	<b>Battery protection cut-out</b> (The voltage is outside the cut-out setting).

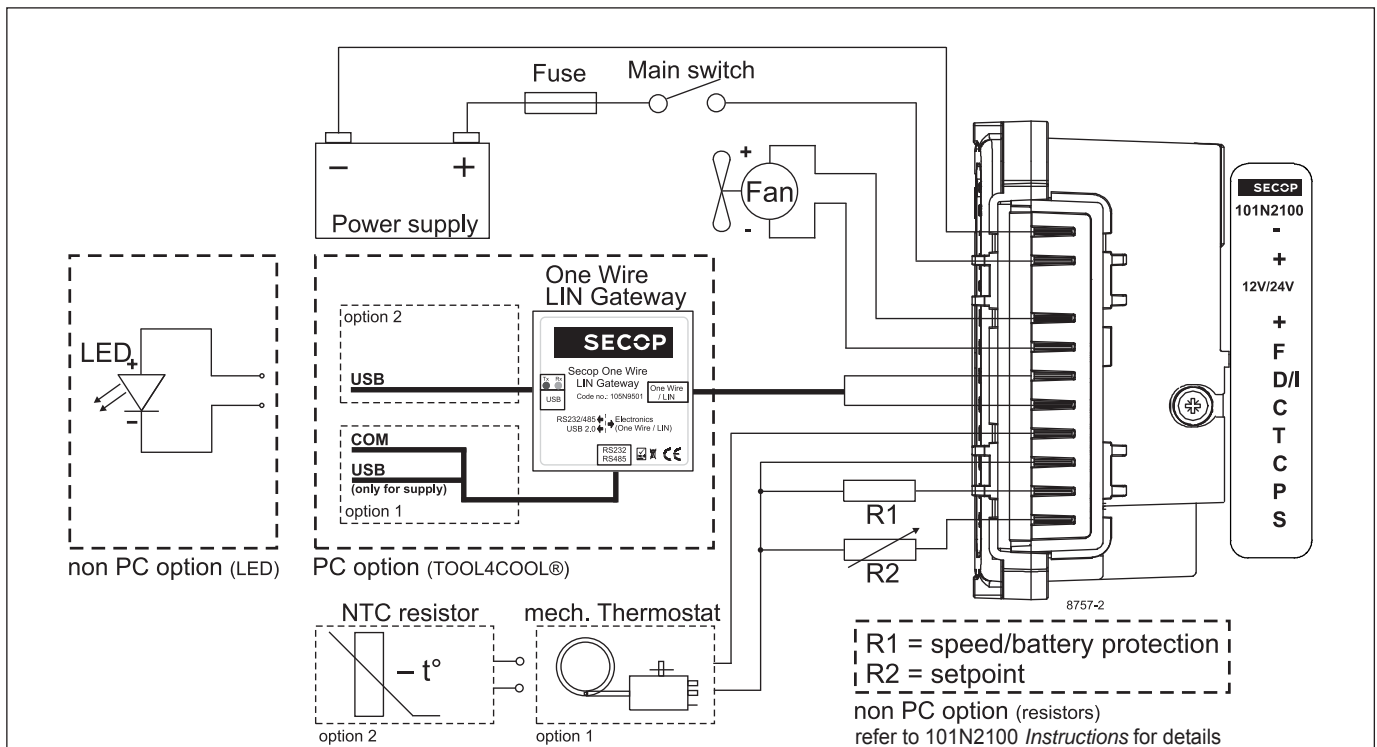
### Wire Dimensions DC

Cross section [mm <sup>2</sup> ]	Size AWG [Gauge]	Max. length* 12V operation		Max. length* 24V operation	
		[m]	[ft.]	[m]	[ft.]
2.5	12	2.5	8	5	16
4	12	4	13	8	26
6	10	6	20	12	39
10	8	10	33	20	66

\*Length between battery and electronic unit

Accessories for BD1.4F-VSD	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
Terminal cover for electronic unit	105N9120
Automobile fuse	12V: 15A DIN 7258
Main switch	24V: 15A min. 20A
	Not deliverable from Secop

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



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