

# BD1.4F-FSD Direct Current Compressor R134a, 12-24V DC & 100-240V AC 50/60Hz



## General

Code number (without electronic unit)	109Z0305
Electronic unit - Fixed Speed	101N2600, 30 pcs: 101N2601
Electronic unit - Fixed Speed w. AC/DC converter	101N5200, 30 pcs: 101N5201
Approvals	VDE, UL, CCC, C-Tick
Compressors on pallet	180

## Application

Application		LBP/MBP
Evaporating temperature	°C	-30 to 0
Voltage range DC	VDC	9.6 - 17 / 19 - 34
Voltage range AC	V/Hz	100 - 240 / 50 - 60
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	S	-
38°C	S	S	-
43°C	S	S	-

Remarks on application:

## Motor

Motor type	permanent magnet, brushless DC	
Speed	rpm	3000
Resistance, all 3 windings (25°C)	mΩ	210

## Design

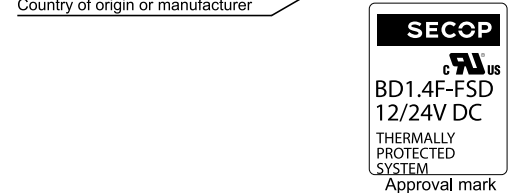
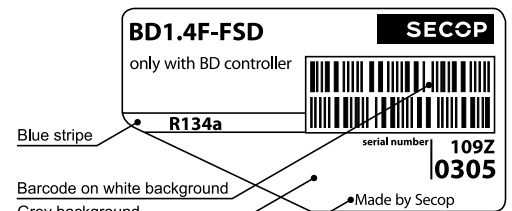
Displacement	cm <sup>3</sup>	1.41
Oil quantity (type)	cm <sup>3</sup>	75 (polyolester)
Maximum refrigerant charge	g	150
Free gas volume in compressor	cm <sup>3</sup>	500
Weight - Compressor/Electronic unit	kg	2.1 / 0.11 (DC) / 0.29 (AC/DC)

## Standard battery protection settings (refer to 101N2600/5200 Instructions for optional settings)

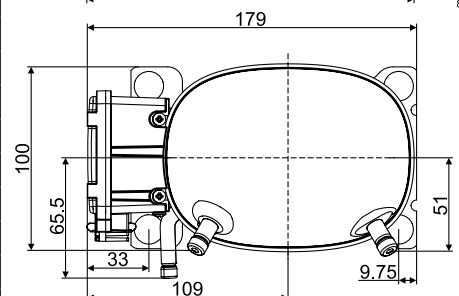
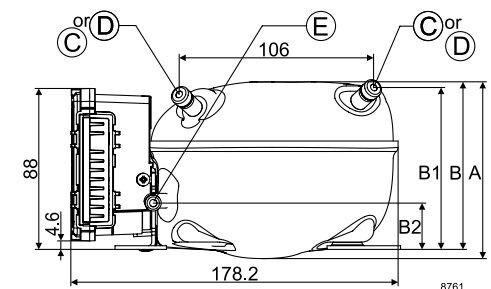
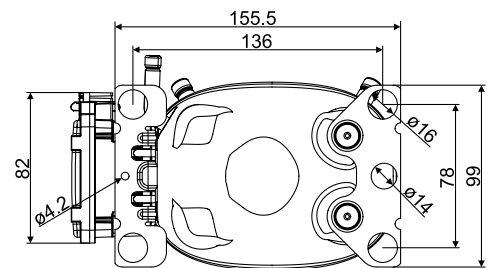
Voltage (0.1 steps)			Min. value	Default	Max. value	
12V	± 0.3V DC, all values	Cut out	VDC	9.6	10.4	17
		Cut in diff.	VDC	0.5	1.3	10
24V	± 0.3V DC, all values	Cut out	VDC	19	21.3	27
		Cut in diff.	VDC	0.5	1.3	10

## Dimensions

Height	mm	A	96.25
		B	91.25
		B1	88.00
		B2	25.20
Suction connector	location/I.D. mm   angle	C	6.2   25°
	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   0°
	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



### EN 12900 Household (CECOMAF)

Evap. temp. in °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0
Capacity in W	4.7	13.2	16.4	23.3	35.2	49.4	60.1	66.0	85.4
Power cons. in W	15.7	22.6	24.8	28.8	34.5	39.6	42.8	44.4	48.7
Current cons. in A	1.30	1.73	1.88	2.16	2.57	2.98	3.24	3.37	3.76
COP in W/W	0.30	0.58	0.66	0.81	1.02	1.25	1.40	1.49	1.75

### EN 12900 Household (CECOMAF)

Evap. temp. in °F	-20	-13	-10	0	10	14	20	30	32
Capacity in W	6.5	13.2	16.4	28.3	42.8	49.4	60.2	80.9	85.4
Power cons. in W	17.3	22.6	24.7	31.4	37.4	39.6	42.8	47.8	48.7
Current cons. in A	1.40	1.73	1.88	2.34	2.80	2.98	3.24	3.68	3.76
COP in W/W	0.38	0.58	0.66	0.90	1.14	1.25	1.41	1.69	1.75

### ASHRAE LBP

Evap. temp. in °F	-20	-13	-10	0	10	14	20	30	32
Capacity in BTU/h	29.1	57.3	70.7	121.1	182.1	210	256	343	362
Power cons. in W	17.5	22.8	24.9	31.4	37.3	39.5	42.7	47.5	48.4
Current cons. in A	1.41	1.75	1.89	2.35	2.80	2.97	3.24	3.66	3.75
ERR in BTU/h	1.66	2.52	2.84	3.85	4.88	5.31	5.99	7.22	7.48

### ASHRAE LBP

Evap. temp. in °C	-30	-25	-23.3	-20	-15	-10	-6.7	-5	0
Capacity in W	6.4	16.8	20.8	29.2	44.0	61.5	74.8	82.2	106
Power cons. in W	16.0	22.8	24.9	28.9	34.5	39.5	42.6	44.2	48.4
Current cons. in A	1.32	1.75	1.89	2.16	2.57	2.97	3.23	3.37	3.75
COP in W/W	0.40	0.74	0.83	1.01	1.28	1.56	1.75	1.86	2.19

### 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).

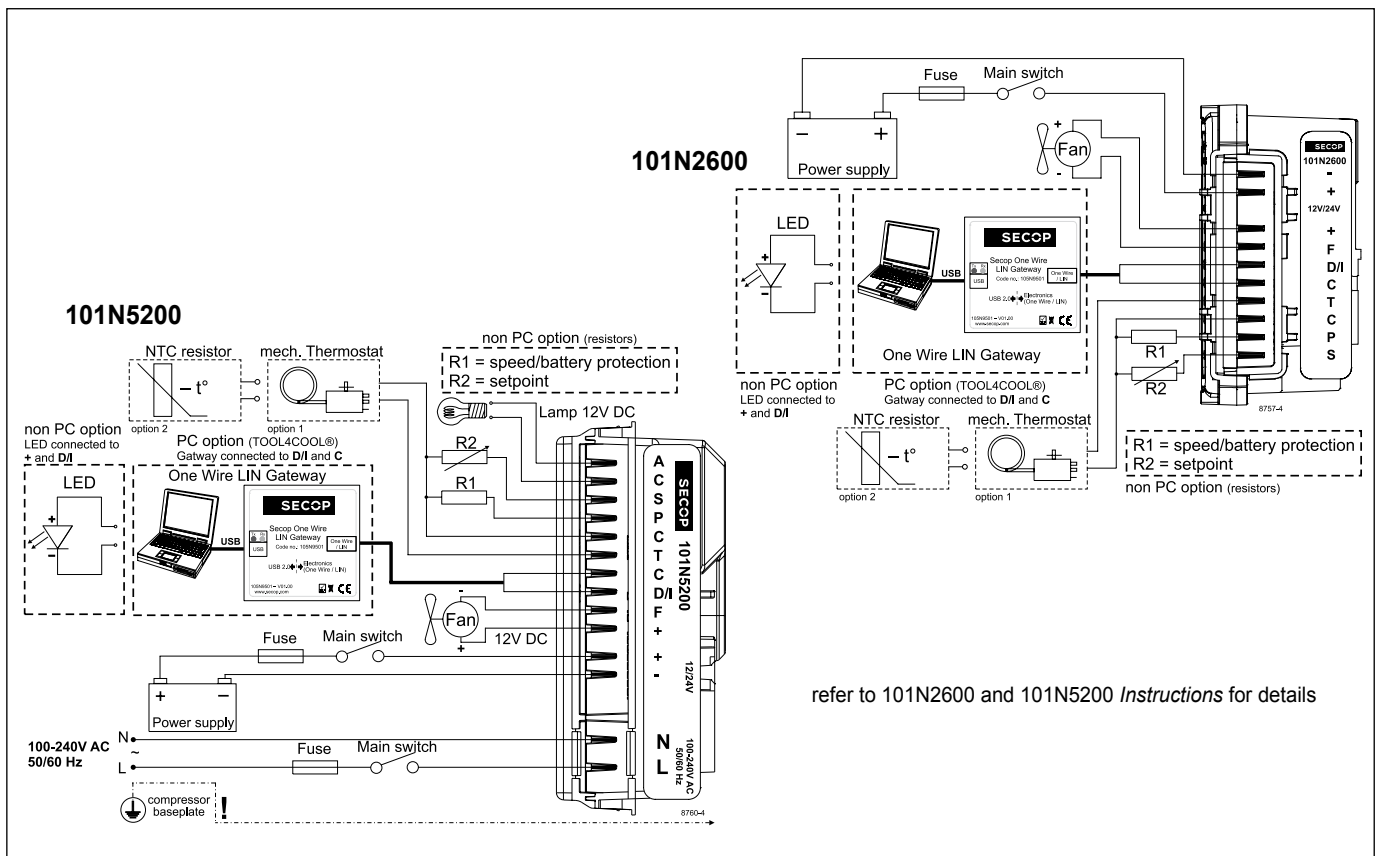
### Wire Dimensions DC

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

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

Accessories for BD1.4F-FSD	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 24V: 15A
DIN 7258	Not deliverable from Secop
Main switch	min. 20A



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