

# BD35K Direct Current Compressor for Solar Applications R600a, 10-45V DC

## General

Code number (without electronic units)	101Z0211
Electronic unit 10-30V DC - Solar	101N0400, 30 pcs: 101N0401
Electronic unit 20-45V DC - Solar	101N0410, 30 pcs: 101N0411
Electronic unit 12-24V DC - Standard	101N0210, 30 pcs: 101N0211
Electronic unit 12-24V DC - EMI (with metal shielding)	101N0220, 30 pcs: 101N0221
Approved compressor - electronic unit combinations	refer to <i>Instructions</i> for 101N0xxx
Additional approvals	e4, C-Tick
Compressors on pallet	150

## Application

Application	LBP/MBP/(HBP)
Evaporating temperature °C	-30 to 0 (10)
Voltage range VDC	10 - 30 / 20 - 45
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	S
38°C	S	S	S
43°C	S	S	S

Remarks on application: - Fan cooling F1 depending on application and speed.  
- **for stationary use only**

## Motor

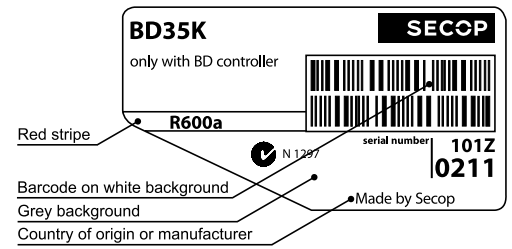
Motor type	variable speed
Resistance, all 3 windings (25°C) Ω	1.8

## Design

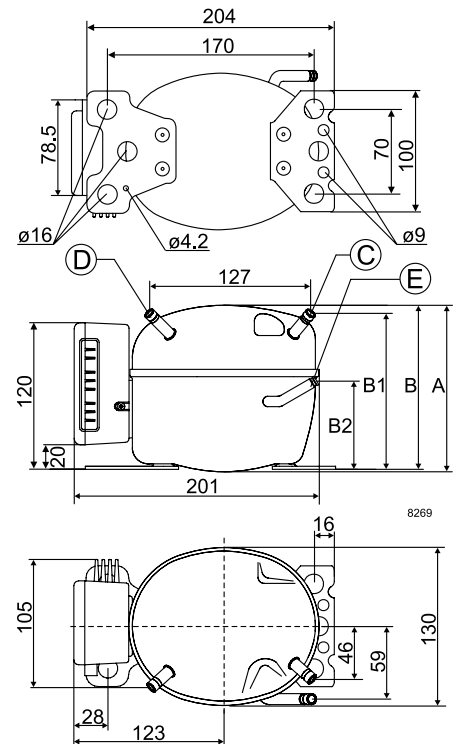
Displacement cm <sup>3</sup>	3.00
Oil quantity (type) cm <sup>3</sup>	150 (polyolester)
Maximum refrigerant charge g	120
Free gas volume in compressor cm <sup>3</sup>	870
Weight - Compressor/Electronic unit kg	4.3 / 0.26 (Solar)

## 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:			



- 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			
2,000	13.2	21.0	23.8	29.7	39.6	51.0	64.0	79.1	96.3	105	116				
2,500	16.8	25.5	28.8	35.6	47.5	61.3	77.5	96.2	118	128					
3,000	20.7	30.5	34.3	42.3	56.3	72.9	92.4	115							
3,500	24.9	36.0	40.2	49.3	65.1	83.8	106								

Capacity (ASHRAE LBP)												12V DC, static cooling		watt	
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15			
2,000	16.0	25.5	29.0	36.1	48.2	62.1	78.0	96.4	118	128	142				
2,500	20.4	31.0	35.0	43.4	57.8	74.7	94.4	117	144	157					
3,000	25.2	37.1	41.7	51.4	68.5	88.7	113	140							
3,500	30.3	43.8	49.0	59.9	79.2	102	129								

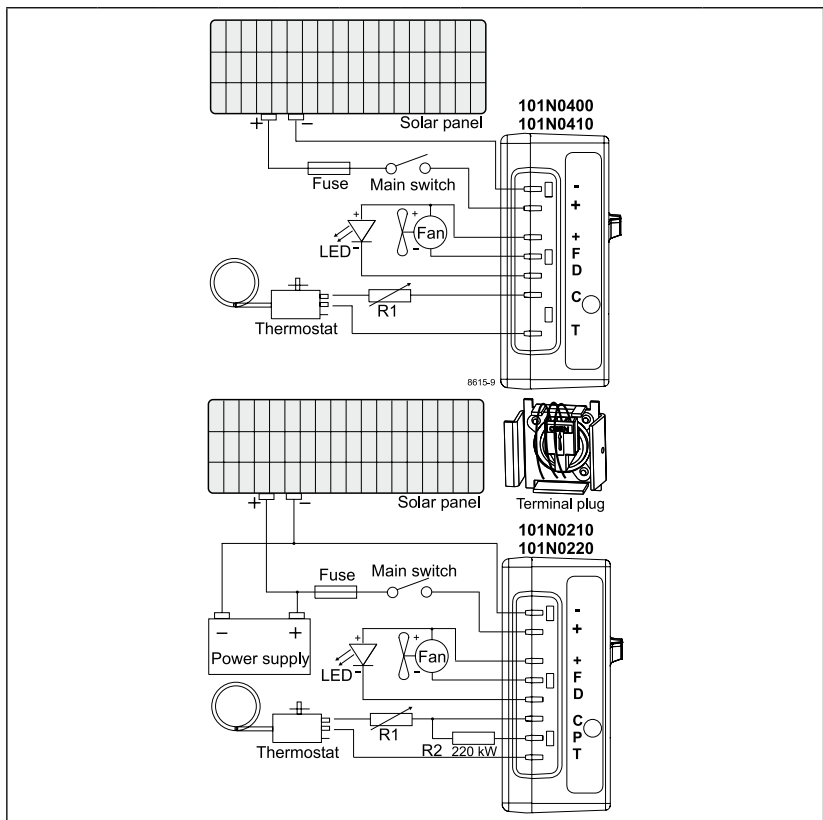
Power consumption												12V DC, static cooling		watt	
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15			
2,000	18.5	22.5	23.9	26.4	30.3	34.2	38.0	41.8	45.7	47.4	49.6				
2,500	23.8	28.5	30.0	32.9	37.2	41.5	45.8	50.2	54.9	57.1					
3,000	29.5	35.9	38.0	41.8	47.4	52.9	58.6	64.6							
3,500	35.1	42.7	45.2	49.7	56.4	63.0	69.7								

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		
2,000	1.54	1.88	1.99	2.20	2.53	2.85	3.17	3.48	3.81	3.95	4.13			
2,500	1.98	2.37	2.50	2.75	3.10	3.46	3.82	4.19	4.58	4.76				
3,000	2.46	2.99	3.16	3.48	3.95	4.41	4.88	5.38						
3,500	2.93	3.56	3.76	4.15	4.70	5.25	5.81							

COP (EN 12900 Household/CECOMAF)												W/W		
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15		
2,000	0.71	0.93	1.00	1.12	1.31	1.49	1.69	1.89	2.11	2.21	2.34			
2,500	0.71	0.90	0.96	1.08	1.28	1.48	1.69	1.92	2.15	2.25				
3,000	0.70	0.85	0.90	1.01	1.19	1.38	1.58	1.78						
3,500	0.71	0.84	0.89	0.99	1.15	1.33	1.52							

COP (ASHRAE LBP)												W/W		
rpm \ °C	-30	-25	-23.3	-20	-15	-10	-5	0	5	7.2	10	15		
2,000	0.87	1.13	1.21	1.37	1.59	1.82	2.05	2.31	2.57	2.70	2.86			
2,500	0.86	1.09	1.17	1.32	1.55	1.80	2.06	2.34	2.62	2.74				
3,000	0.85	1.03	1.10	1.23	1.44	1.68	1.92	2.17						
3,500	0.86	1.03	1.08	1.21	1.40	1.62	1.85							

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



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 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 1A <sub>peak</sub> ).
1	<b>Battery protection cut-out</b> (The voltage is outside the cut-out setting).

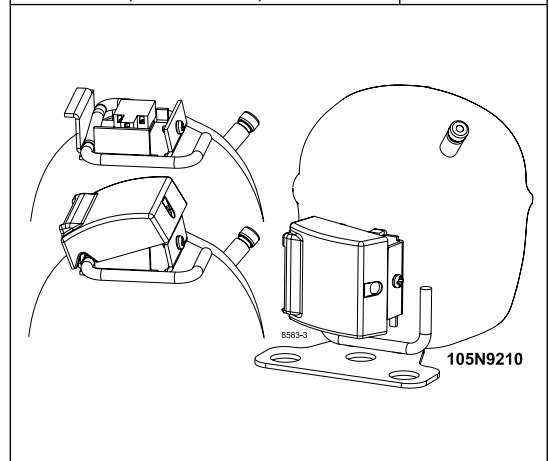
Compressor speed			
Electronit unit	Resistor (R1) [Ω]	Motor speed [rpm]	Control circuit current [mA]
101N0210	0	2,000	5
	277	2,500	4
	692	3,000	3
101N0220	1523	3,500	2
	0	AEO	6
101N0400	173	2,000	5
	450	2,500	4
101N0410 with AEO	865	3,000	3
	1696	3,500	2

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

Size		Max. length* 12V operation		Max. length* 24V operation	
Cross section	AWG	[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 BD35K	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



Automobile fuse DIN 7258	12V: 15A 24V: 7.5 A	Not deliverable from Secop
Main switch	min. 20A	

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