

BD35K Direct Current Compressor for Solar Applications (for stationary use only), R600a , 10-45V

General

Code number (without electronic units)	101Z0211
Electronic unit 10-45V - for solar applications	single: 101N0400, 30 pcs: 101N0401
Electronic unit 12-24V DC - standard	single: 101N0210, 30 pcs: 101N0211
Electronic unit 12-24V DC - with metal shielding	single: 101N0220, 30 pcs: 101N0221
Approved compressor - electronic unit combinations	refer to <i>Technical Info</i> DEHC.El.100.C
Additional approvals	e4
Compressors on pallet	150

Application

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

Motor

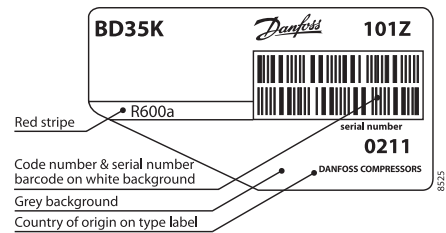
Motor type	Variable speed
Resistance, all 3 windings (25°C)	Ω 1.8

Design

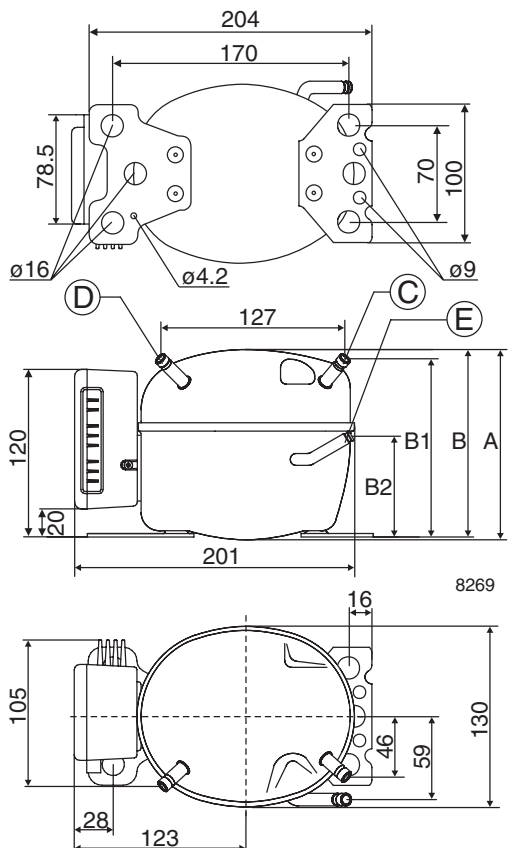
Displacement	cm ³	3.00
Oil quantity (type)	cm ³	150 (polyolester)
Maximum refrigerant charge	g	120
Free gas volume in compressor	cm ³	870
Weight - Compressor/Electronic unit	kg	4.3/0.25

Dimensions

Height	mm	A	137
		B	135
		B1	128
		B2	73
Suction connector	location/I.D. mm angle	C	6.2 41.5°
	material comment		Cu-plated steel Al caps
Process connector	location/I.D. mm angle	D	6.2 45°
	material comment		Cu-plated steel Al caps
Discharge connector	location/I.D. mm angle	E	5.0 21°
	material comment		Cu-plated steel Al caps
Oil cooler connector	location/I.D. mm angle	F	-
	material comment		-
Connector tolerance	I.D. mm		±0.09, on 5.0 +0.12/+0.20
Remarks:			



- 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) 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) 12V DC static cooling **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) 12V DC static cooling **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) 12V DC static cooling **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					

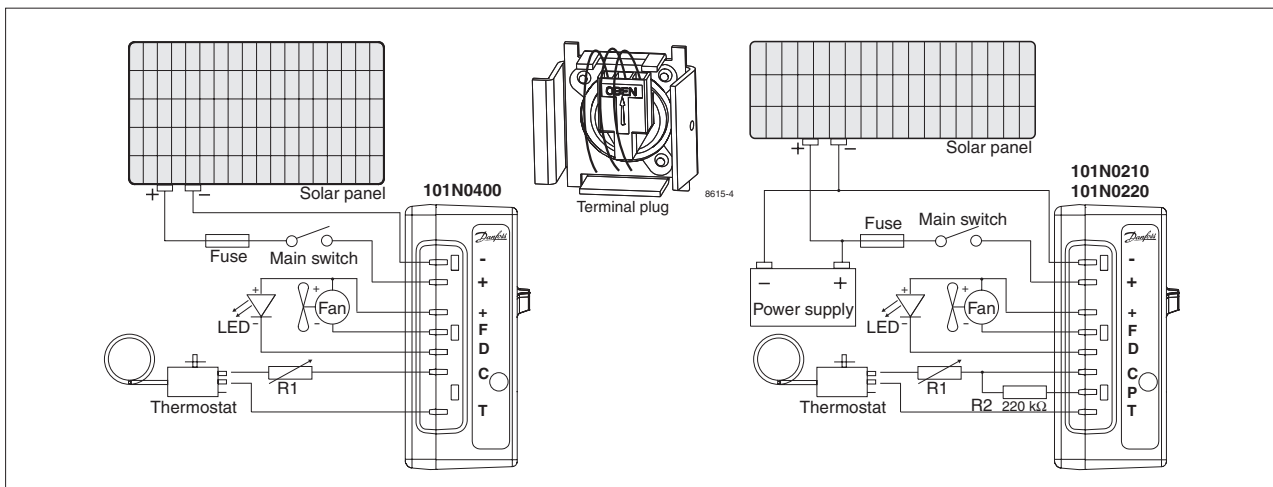
Operational errors shown by LED (optional)

Number of flashes	Error type
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	Fan over-current cut-out (The fan loads the electronic unit with more than 1A _{peak}).
1	Battery protection cut-out (The voltage is outside the cut-out setting).

Wire Dimensions DC

Cross section	Size AWG	Max. length* 12V operation		Max. length* 24V operation	
		[mm ²]	[Gauge]	[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 an electronic unit



Compressor speed

Electronit unit Code number	Resistor (R1) [Ω] <i>calculated values</i>	Motor speed [rpm]	Control circuit current [mA]
101N0400 with AEO	0	AEO	6
	173	2,000	5
	450	2,500	4
	865	3,000	3
	1696	3,500	2
101N0210 101N0220	0	2,000	5
	277	2,500	4
	692	3,000	3
	1523	3,500	2

Test conditions	EN 12900/CECOMAF	ASHRAE
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	BD35K	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
Remote kit (without cable)		105N9210
Standard automobile fuse	12V: 30A	Not deliverable from Danfoss
DIN 7258	24V: 15A	
Main switch	rated to min. 30A	

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

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