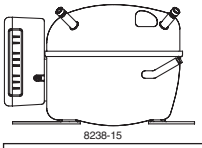


Instructions

Electronic Unit (Solar Applications) for BD35F & BD35K Compressors, 101N0400, 10-45V DC

Fig. 1

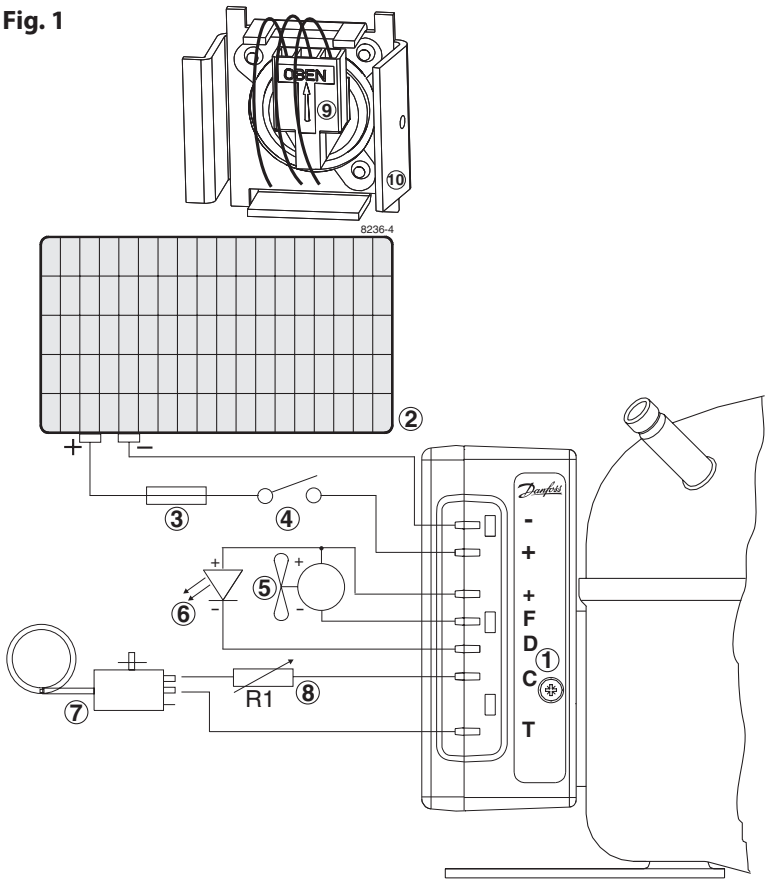


Fig. 2

Accessories

Devices	BD35F/K
Standard automobile fuse DIN 7258 15A	Not deliverable from Danfoss
Mounting accessories	
Bolt joint for one compressor	118-1917
Bolt joint in quantities	118-1918
Snap on in quantities	118-1919

Wire dimensions

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

***Length between battery and electronic unit**

Compressor speed

Electronic unit	Resistor (R1) Ω	Motor speed rpm	Contr.circ. current mA
101N0400 with AEO	0	AEO	6
	173	2,000	5
	450	2,500	4
	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.

ENGLISH

The electronic unit is intended for solar panels. It can operate within a voltage range from 10 to 45V DC. Max. ambient temperature is 55°C. The electronic unit has a built-in thermal protection which is actuated and stops compressor operation if the electronic unit temperature gets too high.

Installation (Fig. 1)
Connect the terminal plug (9) from the electronic unit to the compressor terminal (10). Mount the electronic unit on the compressor by snapping the cover over the screw head (1).

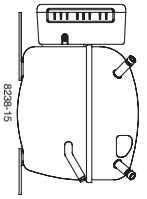
Power supply (Fig. 1)
The electronic unit must always be connected directly to the solar panel poles (2). Connect the plus to **+** and the minus to **-**, otherwise the electronic unit will not work. The electronic unit is protected against reverse battery connection.
For protection of the installation, a fuse (3) must be mounted in the **+** cable as close to the solar panel as possible. A 15A fuse is recommended.
If a main switch (4) is used, it should be rated to a current of min. 20A.
The ***"Wire dimensions"*** in **Fig. 2** must be observed.

Thermostat (Fig. 1)
The thermostat (7) is connected between the terminals **C** and **T**. *With the thermostat directly connected to terminal **C** the electronic unit will adjust its speed to the actual cooling demand.*
Other fixed compressor speeds in the range between 2,000 and 3,500 rpm can be obtained when a resistor (8) is installed to adjust the current (mA) of the control circuit. Resistor values for various motor speeds appear from table ***"Compressor speed"*** **(Fig. 2)**.

Fan (optional, Fig. 1)
A fan (5) can be connected between the terminals **+** and **F**. Connect the plus to **+** and the minus to **F**. Since the output voltage between the terminals **+** and **F** is equal to the supply voltage. A fan that can handle the voltage range of the solar panel must be chosen.

LED (optional, Fig. 1)
A 10mA light emitting diode (LED) (6) can be connected between the terminals **+** and **D**.
In case the electronic unit records an operational error, the diode will flash a number of times. The number of flashes depends on what kind of operational error was recorded. Each flash will last ¼ second. After the actual number of flashes there will be a delay with no flashes, so that the sequence for each error recording is repeated every 4 seconds.

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 $1A_{peak}$).



VDE/UL/CSA Approvals for BD Compressors

Approved Compressor - Electronic Unit Combinations

Compressors		Electronic Units								
		Standard	EMI	Extended EMI	AEO	Solar	AC/DC conv.	High start	High speed	Standard
		101N0210	101N0220	101N0900	101N0300	101N0400	101N0500	101N0230	101N0280	105N4220
BD35F mm	101Z0200	**VDE/UL/CSA**	**VDE/UL/CSA**		**UL/CSA**	**UL/CSA**	**VDE/UL/CSA**			
BD35F inch	101Z0204	**VDE/UL/CSA**	**VDE/UL/CSA**		**UL/CSA**	**UL/CSA**	**VDE/UL/CSA**			
BD35K (R600a)	101Z0211									
BD50F mm	101Z1220	**VDE/UL/CSA**	**VDE/UL/CSA**		**UL/CSA**		**VDE/UL/CSA**	**UL/CSA**		
BD50F inch	101Z0203	**VDE/UL/CSA**	**VDE/UL/CSA**		**UL/CSA**		**VDE/UL/CSA**	**UL/CSA**		
BD80F mm	101Z0280								**UL/CSA**	
BD150F	102G4784									**VDE**
BD250GH	101Z0400								**UL/CSA**	
BD250GH Twin	101Z0500								**UL/CSA**	
BD120CL (R404A)	101Z0403									
BD150CL (R404A)	101Z0404									
BD100CN (R290)	101Z0401									
BD120CN (R290)	101Z0402									

VDE/UL/CSA = Combination possible, VDE or UL or CSA approval

= Combination possible, but no approval

= Combination not possible

Instructions
Electronic Units for BD Compressors