Danfoss Secop BD35F 101Z0200 DC compressor technical specifications and 12V 24V, 1/8 hp

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Focus Keyphrase: Danfoss Secop BD35F 101Z0200 DC compressor technical specifications and 12V 24V wiring guide for mobile refrigeration Mbsmpro

SEO Title: Mbsmpro.com, Compressor, BD35F, 1/8 hp, Secop Danfoss, R134a, 12V 24V DC, Mobile Refrigeration, 101Z0200, Technical Datasheet

Meta Description: Professional guide to the Danfoss Secop BD35F 101Z0200 compressor. Includes 12/24V DC electrical schemas, HP ratings, R134a cooling capacities, and technical data for marine and solar cooling.

Slug: compressor-bd35f-101z0200-secop-danfoss-r134a-12-24v-dc-guide

Tags: BD35F, 101Z0200, Secop, Danfoss, R134a, 12V DC Compressor, 24V DC Compressor, Mobile Cooling, Solar Fridge, Mbsmgroup, Mbsm.pro, mbsmpro.com, mbsm

Excerpt: The Danfoss Secop BD35F 101Z0200 is the industry standard for DC mobile refrigeration. Engineered for 12V and 24V systems using R134a, this compressor offers variable speed performance from 1/8 to 1/5 hp. This Mbsmpro technical guide explores its electronic control unit, wiring schemas, and cooling capacities for trucks, boats, and solar-powered appliances.

101Z0200, 12V DC Compressor, 24V DC Compressor, BD35F, Danfoss, mbsm.pro, mbsmgroup, mbsmpro.com, Mobile Cooling, R134a, Secop, Solar Fridge

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Mbsmpro.com, Compressor, BD35F, 1/8 to 1/5 hp, Secop Danfoss, Mobile Cooling, R134a, 35-120 W, 12-24V DC, LBP/MBP/HBP, Brushless DC, -30°C to +10°C, Cooling or Freezing

The **Secop Danfoss BD35F (code 101Z0200)** is widely regarded as the most reliable and versatile direct current (DC) compressor ever engineered. Designed specifically for mobile applications—ranging from marine refrigeration and truck cabins to solar-powered medical coolers—this unit utilizes a high-efficiency brushless DC motor. As a field expert, I have seen these units operate in extreme conditions where stability and low energy consumption are the highest priorities.

Unlike standard household compressors that run on a fixed frequency, the **BD35F** is a variable-speed machine controlled by an integrated electronic unit. This allows it to adapt its cooling capacity precisely to the demand, significantly extending battery life in off-grid environments.

Technical Specifications and Performance Data

The following table outlines the mechanical and thermodynamic characteristics of the BD35F unit.

Property	Technical Detail
Model Number	101Z0200 (BD35F)
Refrigerant	R134a
Voltage Range	12V DC and 24V DC (Automatic Switching)
Horsepower (HP)	1/8 hp (at 2000 RPM) to 1/5 hp (at 3500 RPM)
Displacement	2.00 cm^3
Oil Type / Amount	Polyolester (POE) / 150 cm^3
Cooling Type	Static or Fan Cooled (Recommended)
Application Range	LBP / MBP / HBP (-30°C to +10°C)
Standard Control Unit	101N0210, 101N0212, or 101N0510

Cooling Capacity and Power Consumption

The BD35F’s performance is directly linked to its rotational speed (RPM), which is determined by a resistor in the thermostat circuit.

Speed (RPM)	Cooling Capacity (Watts)	Power Consumption (Watts)	Current Draw (12V)
2,000	35 W	28 W	2.3 A
2,500	48 W	38 W	3.1 A
3,000	62 W	51 W	4.2 A

3,500	76 W	65 W	5.4 A

Note: Values based on LBP conditions (-25°C evaporation temperature).

Electrical Schema and Control Unit Interface

The electronic unit is the “brain” of the compressor. It handles the starting sequence, battery protection (low voltage cut-out), and speed regulation.

Electronic Unit Connection Map:

1. **Terminals (+) and (-):** Connect directly to the battery. **Crucial Notice:** Always use a fuse (15A for 12V, 7.5A for 24V) and ensure wire thickness is sufficient to prevent voltage drop.
2. **Terminal (F):** Connection for a small 12V/24V DC fan (max 0.5A). The fan helps cool the condenser and the electronics.
3. **Terminals (C) and (T):** Thermostat connection. Placing a resistor here sets the compressor speed (e.g., no resistor = 2000 RPM; 1500 Ω = 3500 RPM).
4. **Terminal (D):** Diagnostic port. A LED connected between (+) and (D) will flash error codes to indicate faults like low battery or motor overload.
5. **Terminal (P):** Battery protection setting. Connecting different resistors here changes the low-voltage cut-out levels.

Logic Schema Summary:

[Battery 12/24V] –> [Electronic Unit] –> [3-Phase BLDC Output] –> [Compressor Motor]

Comparative Analysis: BD35F vs. BD50F

In the field, technicians often choose between the **BD35F** and the slightly larger **BD50F**. While they look identical externally, their internal displacement differs.

Feature	BD35F (101Z0200)	BD50F (101Z1220)
Displacement	2.0 cm^3	2.5 cm^3
Max Capacity	120 Watts (HBP)	160 Watts (HBP)
Efficiency	Best for small boxes (under 100L)	Better for large coolers/freezers
Energy Usage	Lower idle/starting current	Slightly higher power requirement

Engineering Advice and Maintenance Notices

- ***Wire Gauge Importance:*** DC systems are extremely sensitive to voltage drops. If your wiring is too thin, the electronic unit will detect “low voltage” and shut down the compressor (1 flash on the LED), even if the battery is full.
- ***Heat Dissipation:*** Always install the compressor in a ventilated area. If the electronic unit reaches 85°C, it will trigger a thermal shut-down.
- ***Refrigerant Precision:*** These systems usually have very small charge weights (30g to 90g). Overcharging by even 5 grams can cause high pressure and motor stalling.
- ***Benefit of Variable Speed:*** For solar setups, running the compressor at 2000 RPM (lowest speed) is the most energy-efficient way to maintain temperature, as it minimizes the start/stop cycles

that consume the most peak power.

Technician’s Troubleshooting Checklist

1. **LED Flashes (1):** Low voltage. Check wire connections and battery charge.
2. **LED Flashes (3):** Motor start error. The system is likely over-pressurized or the compressor is seized.
3. **LED Flashes (5):** Thermal cut-out. Improve ventilation around the electronic module.

Mbsmgroup remains your leading resource for professional refrigeration engineering. By mastering the technical nuances of the **BD35F 101Z0200** , you ensure the longevity and efficiency of mobile cooling systems worldwide.

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