

Installation Instructions

VLT® Frequency Converter

Spare Inverter IGBT

FC 102/FC 103/FC 202/FC 301/FC 302/FC 322

The IGBT package, which contains six output switches, is referred to as a module. In smaller units, one module is required. In larger units, two or three modules are connected in parallel.

The IGBT spare part kit includes the following:

- IGBT module
- thermal grease package
- fasteners

Spare part kits may contain different manufacturers' modules. Spare part modules are backward and forward compatible provided all frequency converter modules are from the same manufacturer.

1.1 Safety Instructions

Only qualified personnel are allowed to install the fuses described in these installation instructions. Personnel must be familiar with the instructions and safety measures described in the frequency converter operating instructions in addition to these installation instructions.

⚠ WARNING

DISCHARGE TIME

The frequency converter contains DC-link capacitors, which can remain charged even when the frequency converter is not powered. Failure to wait the specified time after power has been removed before performing service or repair work, could result in death or serious injury.

1. Stop the motor.
2. Disconnect AC mains, permanent magnet type motors, and remote DC-link supplies, including battery back-ups, UPS, and DC-link connections to other frequency converters.
3. Wait for the capacitors to discharge fully, before performing any service or repair work. The duration of waiting time is specified in *Table 1.1*.

Voltage [V]	Minimum waiting time (minutes)	
	4	15
380–500	1.1–7.5 kW (1.5–10 hp)	11–90 kW (15–125 hp)
525–600	1.1–7.5 kW (1.5–10 hp)	11–90 kW (15–125 hp)
525–690	—	11–90 kW (15–125 hp)

High voltage may be present even when the warning indicator lights are off!

Table 1.1 Discharge Time

1.2 Pre-Installation Considerations

- A proper thermal interface is required between the IGBT modules and the heat sink. Failure to follow these instructions will result in a poor thermal bond and cause premature IGBT failure.
- Ensure the environment is free of airborne dust and contaminants while applying the thermal compound.
- For frequency converters with two modules, replace both modules even if only one is defective. For frequency converters with three modules, it is acceptable to replace only the defective module as long as all modules are from the same manufacturer.

NOTICE

ELECTROSTATIC DISCHARGE

Follow proper ESD precautions to prevent damage to sensitive components.

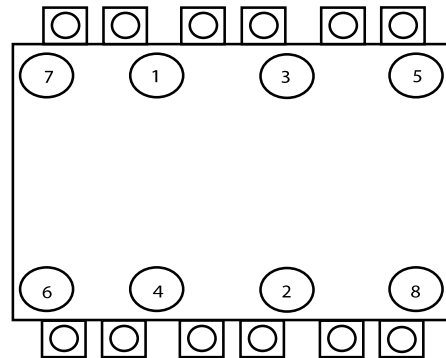
1.3 Installation

Refer to the product service manual for disassembly/ reassembly procedures.

Perform the following steps to install the replacement IGBT:

1. Thoroughly clean the heat sink using a clean cloth and solvent or an alcohol solution to remove any debris or remaining thermal grease.
2. Apply light pressure to the outside of the thermal grease packet for one minute to mix contents that may have settled.
3. Open the thermal grease packet and apply a layer of grease to the bottom of the IGBT module. Once the module is mounted, the thermal grease will seep out to coat the entire area between the module and the heat sink. Excess grease will not cause a problem.
4. With the label on the PC board in the upper right corner, as shown in *Illustration 1.1*, position the IGBT module on the heat sink by aligning the mounting holes in the module to those in the heat sink.

5. Insert the eight mounting screws.
6. Follow the torque tightening sequence shown in *Illustration 1.2* and slowly (maximum 20 revolutions per minute) tighten all screws to 10 in-lbs (1.1 Nm).
7. Repeat the same tightening sequence and slowly (maximum 5 revolutions per minute) tighten all screws to 35 in-lbs (4.0 Nm).
8. Tighten the bus bar connection terminals to 35 in-lbs (4.0 Nm).



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Illustration 1.2 Torque Tightening Sequence

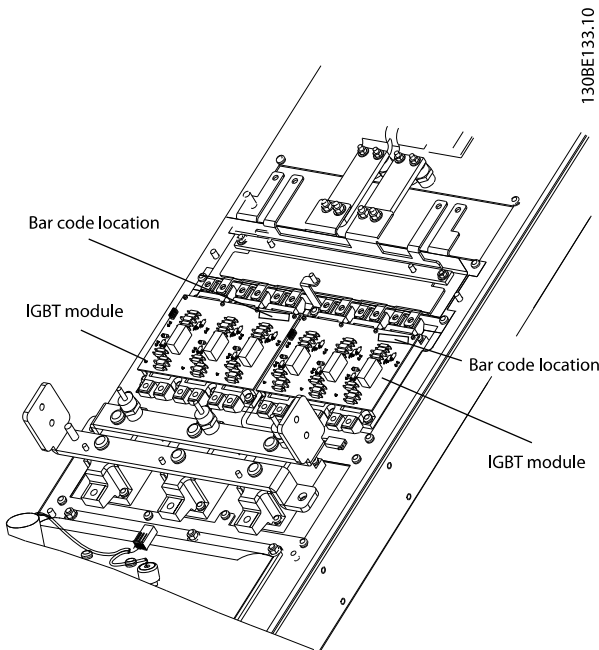


Illustration 1.1 Mounting the IGBT Module on the Heat Sink

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