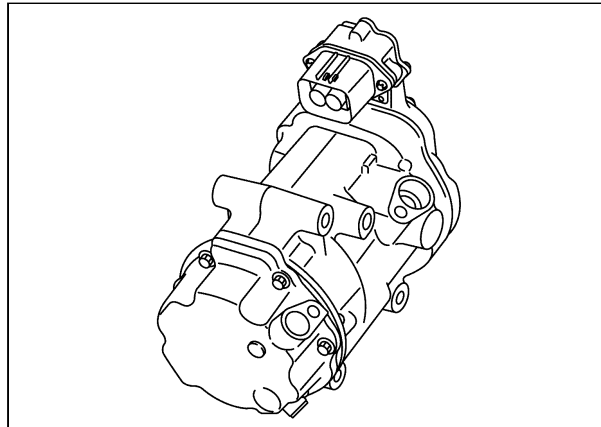


# Component Description

With Heat Pump System

NISA0000000014396682

- An electric scroll compressor is used.



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MIIA4208ZZ

- A 3-phase output inverter with IGBT (Insulated Gate Bipolar Transistor) is used.



## NOTE:

**IGBT (Insulated Gate Bipolar Transistor) is a transistor which is suitable for high voltages and large currents and which can control large electrical power using a small gate voltage.**

- The structure integrates the inverter, compressor, and motor, allowing compressor to operate at any speed.
- The inverter communicates with A/C auto amp., and uses PWM control to control the motor speed via the drive circuit.



## NOTE:

- **PWM (Pulse Width Modulation) is a system that controls current and voltage by changing the duty ratio of a constant frequency pulse wave.**
- **PWM is used as the adjustment method of output voltage when inverter is used as a power supply for controlling motor speed.**
- **PWM changes voltage application time (pulse width) using a semiconductor element and controls motor speed.**

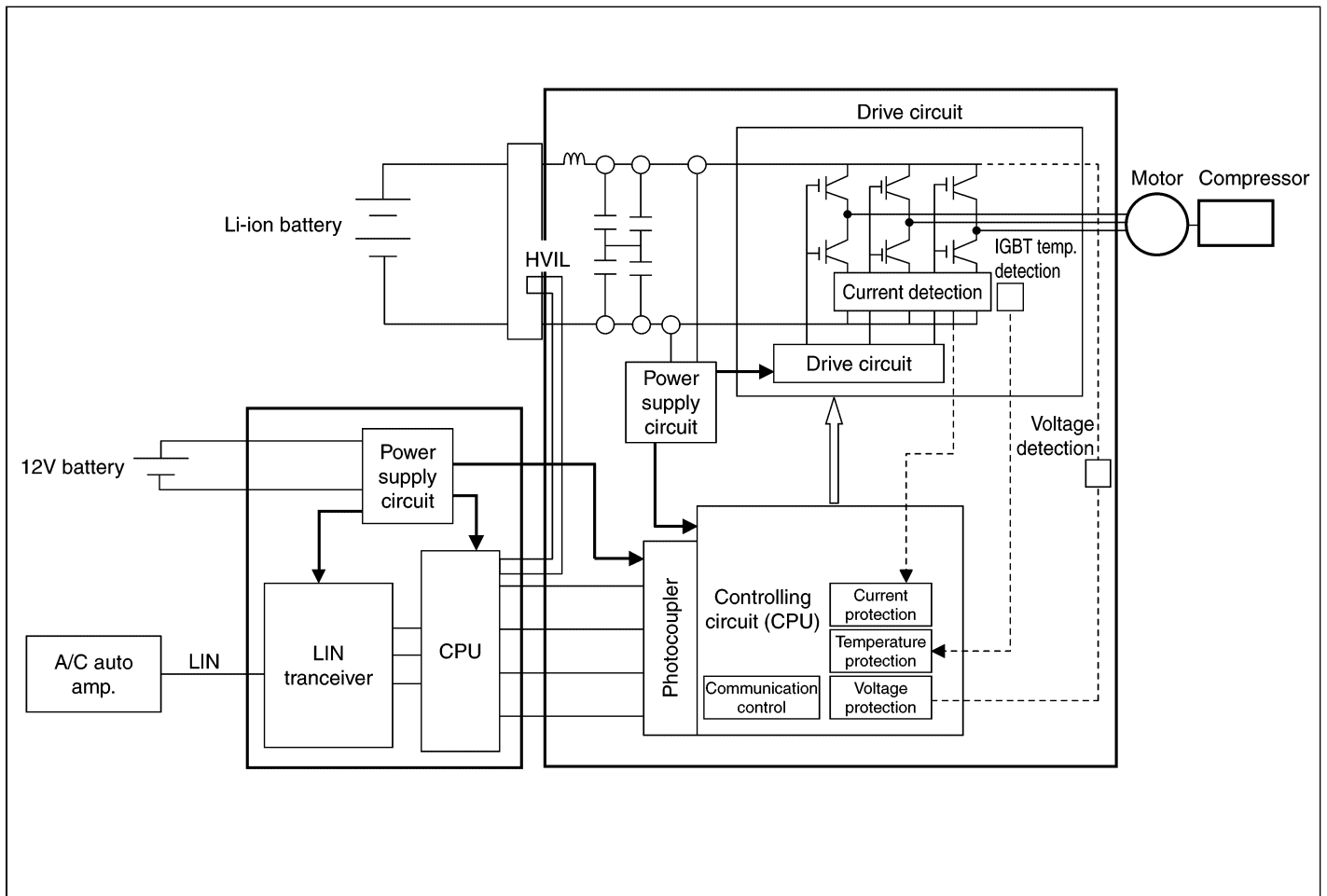
- The IGBT temperature sensor uses the inverter control circuit to monitor for an increase in motor drive circuit temperature in order to prevent circuit overheating.
- Adopts the HVIL (High-Voltage Interlock Loop) circuit inside the electric compressor, and CPU monitors the HVIL circuit.



## NOTE:

**HVIL is composed of the loop circuit in the electric compressor and the high pressure system connector, and detects connector poor connection, etc. due to open circuit.**

- The motor uses a DC brushless motor, with speed control performed by the inverter drive circuit.



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