

Description of Operation: The Nissan Fob Reader is an immobilization device which allows the operator of the vehicle to start the car by pushing a button once the identity of the fob has been authenticated by the reader. The authentication process is initiated once the fob is inserted into the reader by a mechanical switch which powers up the reader by the car's battery. The antenna drivers of the reader IC output a 125 KHz sine wave at approximately 100 Vpp; this frequency is created by a 4MHz oscillator which is connected to the IC and subsequently divided down to 125 KHz. The fob reader communicates to the fob by BPLM (binary pulse length modulation); the fob communicates back to the reader through ASK modulation by simply attenuating the reader signal through a current limiter. At each communication phase the data is sent via a serial interface to a separate electronic control module which determines the authenticity of the information the fob is providing. Upon successful verification of the fob's ID, the ECU allows the vehicle to be started.