



Renault – Nissan 3H Immobilizer

Functional description & user manual



Index of Changes

No.	Version	Chapter	Description	Name/Date
1	V1		Initial Version	Xiao Jie Mar. 13rd, 2015
2	V2		update	Xiao Jie Jun.3rd,2015



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1 General Description

This document describes the content and the function of the Immobilizer Active Antenna.

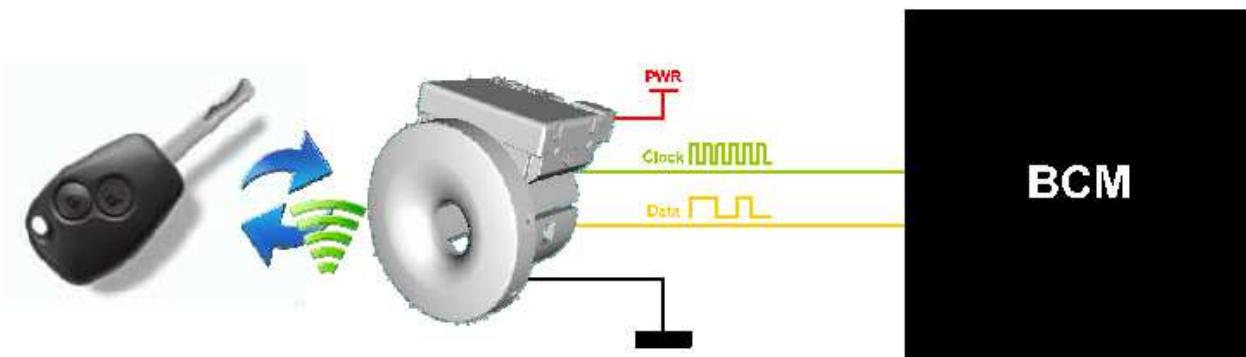
All documents will be exchanged in English



2 Product concept

The whole immobilizer function is accomplished by the mutual authentication between key and BCM while the active antenna is playing a role of charging transponder in key and data modulation (demodulation) in the communication path. The typical immobilizer system with active antenna can be referenced as below:

Only active antenna is covered by this technical specification



2.1 Functionality

- Magnetic field generation:

The active antenna contains base station for driven antenna coil which generates the LF field for charging transponder as well as carrying the modulated data.

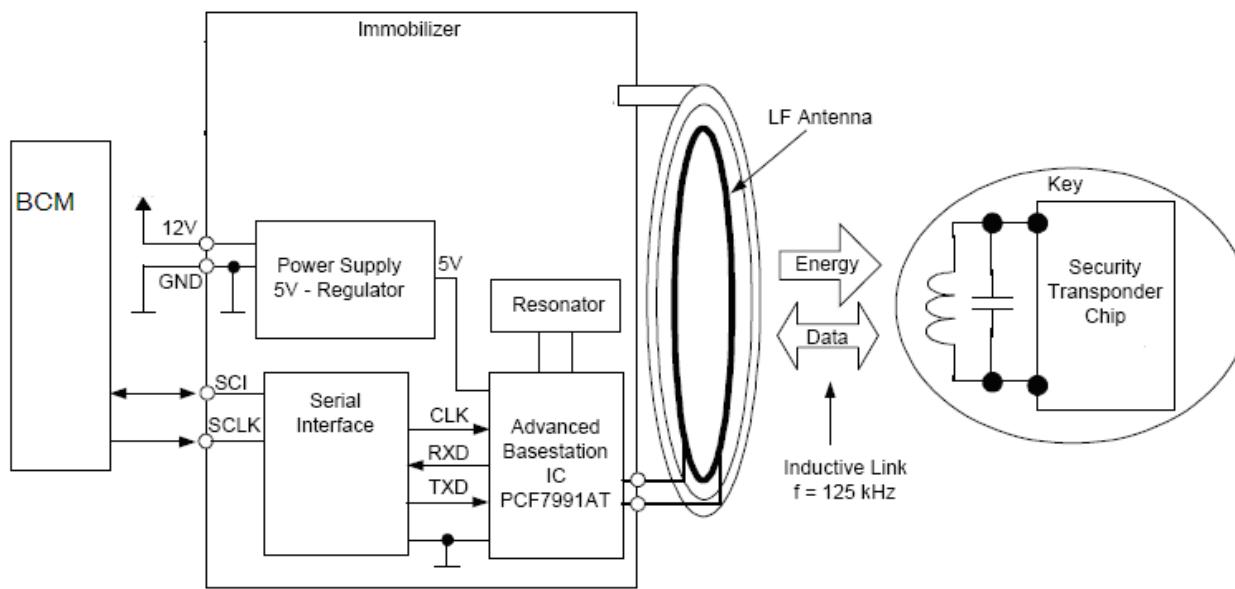
- Serial communication with BCM:

The active antenna is connected to BCM via synchronous serial link. LF communication data is converted to baseband signals by active antenna and transmitted in half-duplex mode between transponder and BCM on this interface.

2.2 HW concept

PCBA is reuse DFL step 8 PCBA.

Simple HW block diagram can be found as below:



The active antenna contains the ABIC1 immobilizer base station IC, a ceramic resonator for clock generation, and a voltage regulator for stabilization of power input. It needs to be connected to the BCM for the communication function as well as to battery supply and ground.

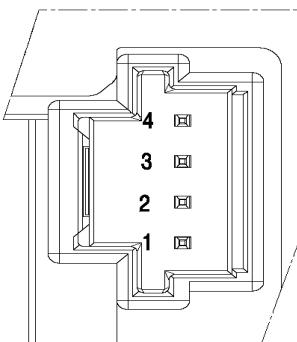
2.3 Mechanical concept

2.3.1 IMMO overview

The LF antenna is integrated into the housing:

- One housing with integrated LF antenna, connector and PCB fixture,
- One cover ring, in front side of the antenna coil.

2.3.2 Connector



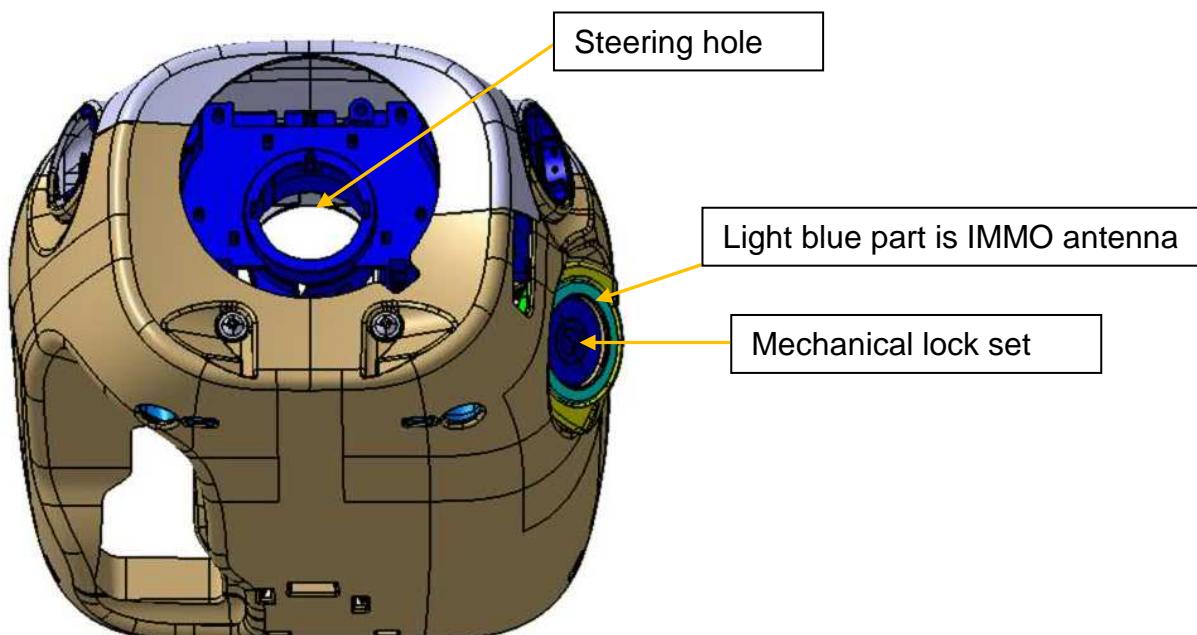
PIN DEFINITION		
PIN NO.	SIGNAL	DESCRIPTION
1	BAT	Supply voltage (12V)
2	SCLK	Synchronization clock for serial interface
3	GND	Ground
4	SDATA	Bidirectional serial data line

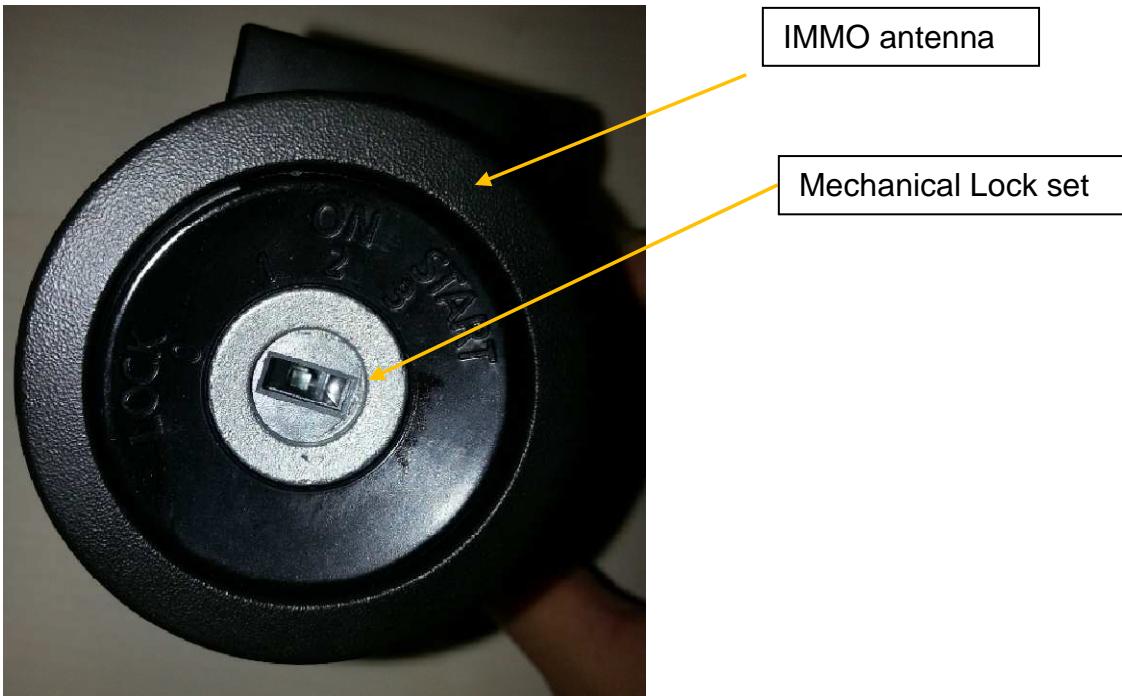
2.4 SW concept

There is no software inside active antenna; all control logic is implemented in BCM.

3 End user manual

3.1 Overview picture to show where IMMO antenna on car (from driver direction)





3.2 End user operating steps:

Step 1: Insert key to mechanical lock set



Step 2: Rotate key to start position (start letter shown on mechanical lock set). Authentication is started among key, IMMO, and EMS.

Step 3: When you feel engine has been started, then release key, key will automatic rotate back to ON position (On letter which shown on mechanical lock set)