

Design guide for RF transmitter and receiver (CDP-02E and CDP-02F series)

The following problems generally apply to radio modules

Problem	Solution
Touching or moving the antenna changes its impedance, which causes variations in emission power. The variation appears as distortion in the modulating signal and causes communication errors.	Fix the position of the antenna to avoid moving it. Positioning of the antenna is an important factor in operating the radio module efficiently.
Circuit Design's receivers are designed to be vibration resistant. However there is a limit to the amount of shock and vibration the module can sustain due to its construction.	In order to fix the receiver to the PCB strongly, solder the case to the PCB. When using a radio receiver where vibration is always present, use a shock absorber or fix the PCB at the vicinity of the four corners of the receiver module in addition to fixing the four corners of the PCB on which the radio module is mounted.
Circuit Design's receivers are designed for high sensitivity. They will obtain radio signals over long distances. On the other hand, the receiver is sensitive to noise from the microcomputer and surrounding digital circuits due to its high sensitivity.	Make the area beneath the radio module a ground pattern, utilizing part of the shield. Block high frequency elements by adding a choke coil to each line.

When soldering the CDP-02E and CDP-02F series modules, it is recommended to solder the shield case to GND as shown below:



Issue	Date	Comment
1.0	2003/12/09	Start of document
1.1	2020/11/05	Removal of photo, deletion of some information, addition of soldering guide

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