

Future Modifications to the Lower Component Housing Design

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If the distance sensor was replaced, the lower component housing would need to be modified to comply with the new distance sensor. Because the LCH is designed to perfectly fit the current distance sensor, taking into account size, line of sight, and ingress protection, this design would not work for distance sensors of different sizes.

All modifications would take into account that the distance sensor must protrude slightly from the lid covering the cavity so the line of site is not interrupted.

The major design criteria that must be considered going forward for the IR cavity are as follows:

1. The screw holes must not go through to the PCB board cavity
2. The lid thickness must remain what it is now, because it provides room for the O-Ring
 - a. This may make the surface the sensor sits on to be raised, instead of the current design of the surface the lid sits on raised
3. The sensor must stick out slightly from the lid
 - a. This may make the inside of the lid become very thin, while the outer edges remain thick

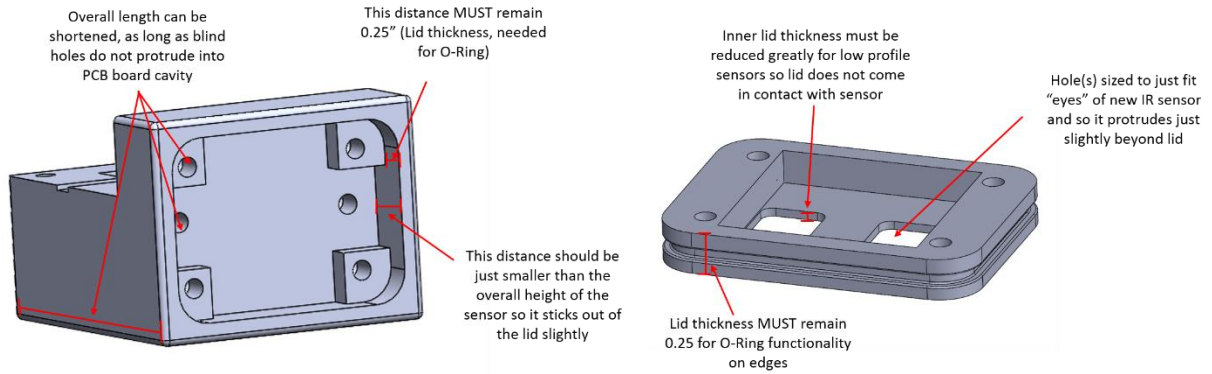
The modifications for each distance sensor are detailed below:

For smaller profile distance sensor that is identical, “one for one” switch

For this modification, because the sensor is a much lower profile, the cavity depth could actually be decreased. By decreasing the cavity depth, the extrusions that the lid sits on could be reduced as well by the same distance, so the distance from the outside surface of the cavity to the top of the extrusions remains .25”, which is the minimum thickness of the lid. By decreasing the overall length of the LCH to 2.70” (down from 3”) and reducing the height of the extrusions by the same 0.3”, the cavity would have the same functions as currently constructed.

However, because there is less room on the new IR sensor for the lid to sit on, the thickness of the lid on the inside (NOT AT THE EDGES) must be reduced significantly so it does not contact and damage the IR sensor.

An example of the inside of the cavity is shown below, with annotations:



Option 2:

Using the different low profile sensor would require more significant design changes, but the same similar design criteria are required. The pattern of the would need to be changed in this scenario.

IF THE PROFILE OF THE SENSOR USED EVER BECOMES LESS THAN 0.25", THEN THE SURFACE THE SENSOR SITS ON WOULD HAVE TO BE RAISED COMPARED TO THE SURFACE THE LID SITS ON; I.E, THE DEPTH OF THE CAVITY WOULD BE 0.25" ON THE CORNERS, AND THE MIDDLE OF THE CAVITY WOULD BE SHALLOWER.