Apple HomeKey Reader with Raspberry Pi Weatherproof Gasketed Enclosure

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VIEW IN BROWSER

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Summary

Enclosure to hold a PN532 NFC reader and a Raspberry Pi Zero 2 W for the purpose of reading an Apple HomeKey,

Hobby & Makers > Electronics

Video of this project working:

This enclosure is intended to hold a PN532 NFC reader along with a Raspberry Pi Zero 2 W for the purpose of reading an Apple HomeKey to unlock or open a door. I'm running the software found here and interfacing with Home Assistant: https://github.com/kormax/apple-home-key-reader

To build this item, you need to print (3) parts: a lid, an enclosure and the hold down for the NFC reader.

There are STLs for the base enclosure with and without a threaded hub. The hub has PG7 threads to accept a cable gland or other fitting. There are no provisions included for mounting the enclosure. You could drill it or add tabs to accept screws. I am using outdoor 3M dual lock tape so that I can remove this project without damage if I wish to at a later date.

I'm using this to open my garage door. I couldn't think of a particularly good way to get the power cable from the outside to the inside other than removing the garage door trim and routing a slot in the back of it. I did this by hand on my router table and ran the slot slightly uphill to discourage water intrusion.

I have not printed the enclosure without the threaded hub, but it should be fine.

I printed the hold down and lid face down with supports in the countersinks for the screws.

I did not need any supports for the base enclosure.

The inside corners of the enclosure have a few abnormalities that I think were caused by using the source OpenSCAD file to product such a small enclosure. These have not caused any compromise in the integrity of the enclosure that I can detect.

The two holes on the inside of the cover intended to accept heat-set inserts are shallow. The inserts will fit, but the soldering iron tools to set them with are usually long enough that you might burn through the front cover if you are not cautious. Be careful and the inserts with fit without damaging the cover.

The bill of materials is as follows:

Electronics:
1x Raspberry Pi Zero 2 W
1x PN532 NFC reader
1x USB cable or other cable for the 5V power supply
1x USB-A power supply or other regulated 5V power supply
4x Short lengths of small gauge wire to connect the NFC reader to the Pi

Hardware
1x Cable tie to serve as a strain relief for the power cable
1x PG7 Cable Gland with gasket/o-ring. Make sure it's an appropriate size for your power cable
6x M3x5x4 Heatset Inserts, 2 for the lid and 4 for the enclosure
4x M3 x 8mm screws for front cover. Can be socket head or button head- stainless would be better for outdoors
4x M2.5 x 5mm screws for Pi, I used socket head, but button head would likely work. Do not over-tighten, threaded into plastic.
2x M3 x 6mm screws for NFC reader strap, button head . Socket head might interfere with Pi, but maybe not.
2mm silicone rubber round gasket cord to help weather proof enclosure lid

This remix is based on

Threaded PG9 and PG7 Gland Inserts for 3/4" Conduit Box

by forkineye

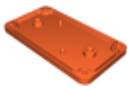
Stable and waterproof electronic box / enclosure

by pb-tec

HomeKey PN532 case

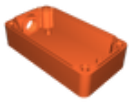
by MohammadAG

Model files

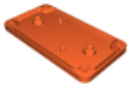


lid-with-homekit-logo-in-portrait.stl

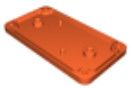
nfc-hold-down.stl



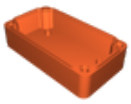
enclosure-with-pg7-hub.stl



lid-with-homekit-logo-in-landscape.stl



lid-with-no-logo.stl



enclosure-with-no-hub.stl

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