Assembling your Easy Mount

The Easy mount is pretty easy to assemble with tools that you should have laying around, the only "special" tool is an .050" hex key wrench, which we provide with the kit.

Tools You'll Need

__ Soldering iron & solder (you should already have these if you built the Apogee!)

__ #1 Phillips screwdriver

__ Wire strippers

__ Diagonal cutters

__ Hole punch

__ Drill and assorted drill bits, for mounting the Easy Mount in your rocket

Eggtimer Apogee Easy Mount Parts List

__ (1) Main Body

__ (1) Top Cap

__ (1) Mounting Ring

__ (1) Charge Well

__ (4) #4 x 1/4 Screws

__ (2) #2 x 3/4 Screws

__ (1) #6 x 3/8 Screw

__ (2) #4 x 3/4 Set Screw

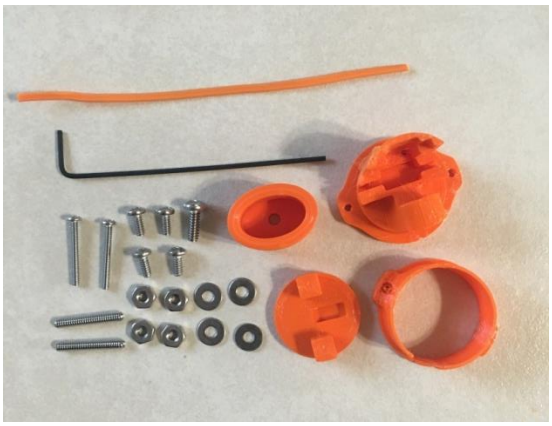
__ (4) #4 Washers

__ (4) #4 Nuts

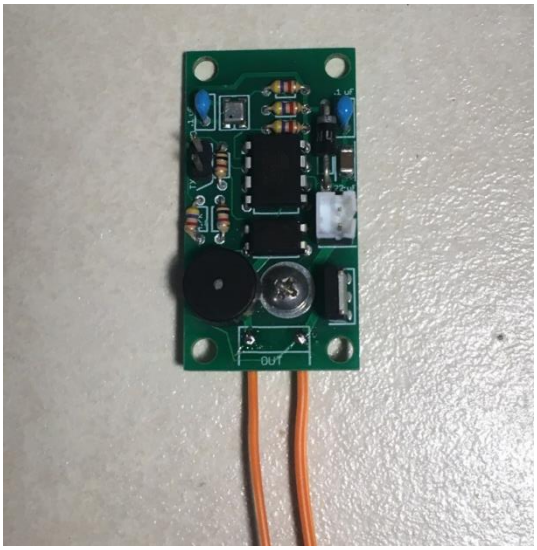
__ (1) 4" of "shooter" wire

__ (1) 24mm Engine Mount Tube

__ (1) .050" Hex Key Wrench

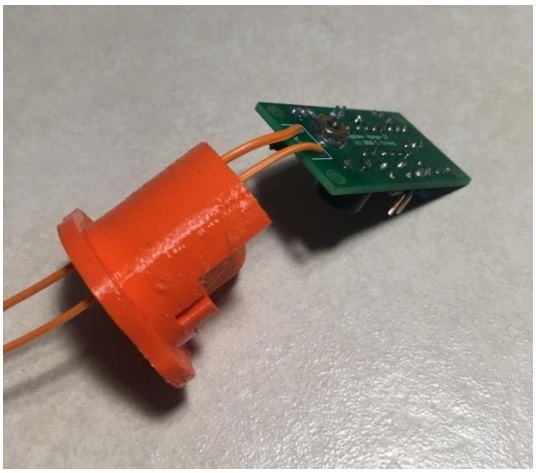


__ Unzip the 4” piece of “shooter” wire, and strip 1/8” off of one end of each piece. Insert the stripped ends into the OUT pads of the Apogee, from the bottom side (the side with the nut for the screw switch). Solder each wire to the pad… the solder joint should be on the front of the Apogee board (the side with all of the components).

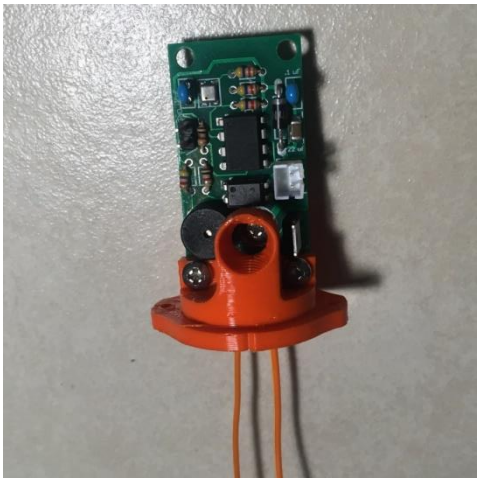


__ Check –fit the wires through the two small holes in the back of the main body. If they’re a little tight, you can open them up a little bit with the .050” hex key wrench.

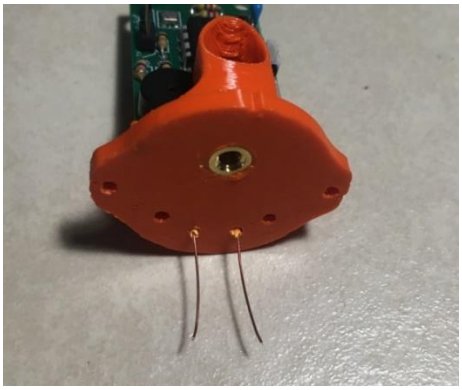
__ Gently bend the wires out from the board about 1/4”. Slide the wires through the two holes in the back of the main body.



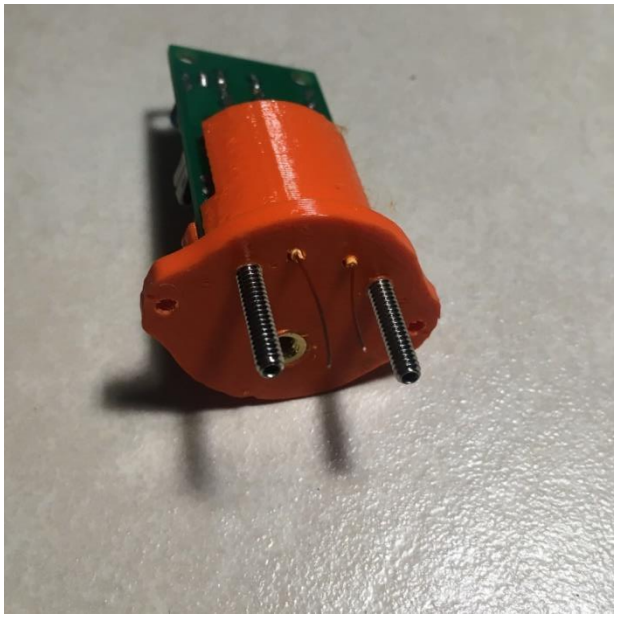
__ Push the Apogee board down into the main body, until it bottoms out. You may need to gently pull on the wires from the bottom of the main body while you're pushing on the Apogee board. Once the board is seated, secure it into the main body with two #4 x ¼" machine screws. Do not use excessive torque on these screws… finger-tight is just fine.



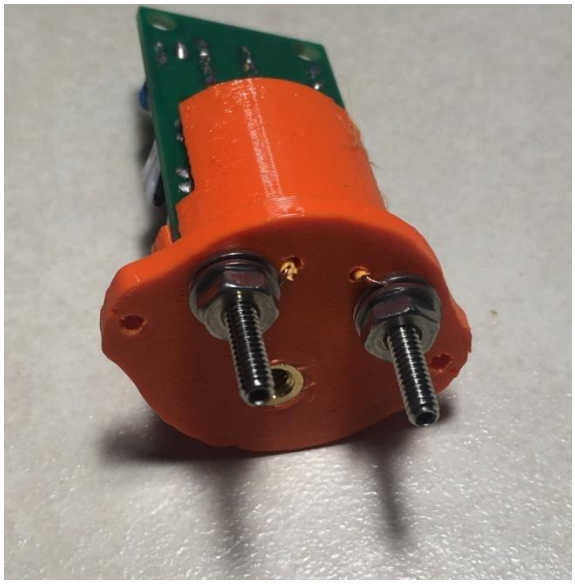
__ Cut the two wires 1 ¼" from the bottom of the main body. Strip the insulation off the wires… you can use a wire stripper, or you can just use your fingernails and pull the insulation off. It's OK if there's a little stub of insulation at the bottom of the main body.



__ Using the .050” hex key wrench, screw the two #4 x ¾” set screws into the holes on the bottom of the main body, they should go in about 1/4” so that about ½” remains.

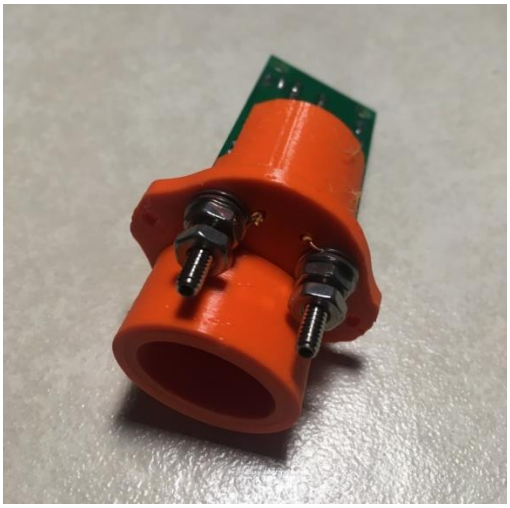


__ For each post: Slide a #4 washer all the way down to the base of the main body. With a pair if needle nose pliers, wrap the wires clockwise snugly around the posts until there’s no more left; it should be about two turns. Slide another #4 washer over the top of the wires, then screw a #4 nut finger-tight over the washer. Insert the .050” hex key wrench into the set screw, and with the pliers tighten the nut, holding the hex key wrench to prevent the set screw from rotating.



__ For each post: Thread the other nut on, lightly. Do not tighten.

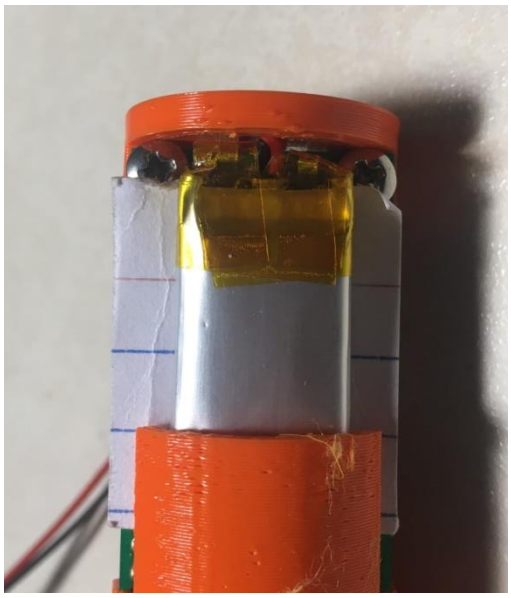
__ Insert the #6 x 3/8 screw into the charge well, then screw the charge well into the bottom of the main body. Align it with the edge of the main body, then tighten the screw.



Note: The following assumes that you are using the 1S 110 mAH LiPo battery that we sell… if you are using a different battery, you may need to modify this procedure depending on the size of your battery.

__ Cut a piece out of an index card, 1 1/8" x 7/8". Insert the two remaining #4 x ¼" screws into the holes in the Apogee board, from the back side. Slide the card down into the back of the mount until it bottoms against the nut. This will provide protection for the battery against the pins on the PC board.

__ Slide the battery into the slot in the mount. Bend the battery wire over the top-middle of the board, then insert the top cap over the Apogee board, and screw it on from the back side. Do not overtighten; finger-tight is fine.



__ Plug the battery connector into the JST-PH connector on the Apogee's board. Turn the screw switch on to confirm that it's beeping, then turn it off by backing out the screw one turn.

Your Easy Mount is now complete. Time to mount it in your rocket…

Easy Mount Mounting Options

There are basically two ways that you can mount your Easy Mount in your rocket. The first is to drill a hole in your nose cone (or AV bay) to fit the mount, then use two #4 x 1/2 " self-tapping screws to hold it in. The second method is for nose cones or AV bays with fiberglass or plywood bulkplates that you glue in, you will use the included mounting ring to hold it in place, after epoxying the ring to the bulkplate.

The Easy Mount is designed to fit inside a 38mm coupler, so you can use it in a 38mm rocket

Outside Mounting

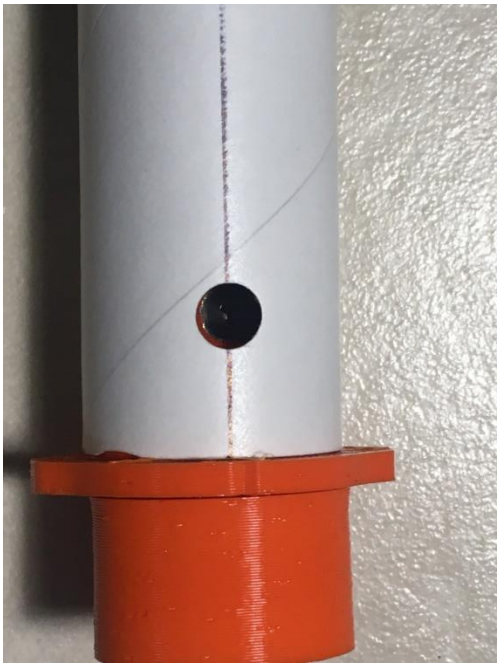
Here's an example of an outside mounting. This is an Estes PSII Leviathan, a 3" diameter cardboard and wood rocket with a plastic nose cone. The base of the nose cone has a 1 ¾" flat spot, which is ideal for mounting an Easy Mount. This rocket flies well on 29mm Level 1 motors, such as 3-grain H motors, which can exceed the drilling delay for the motor.

__ Drill a 1" diameter hole for the Easy Mount to fit into. Depending on the material, you can use a hole saw, or drill several small holes and use a small hobby saw to cut out the "slug", then smooth it out with a rotary tool (that's what we did with the Leviathan).

__ Trial-fit the Easy Mount. Note that the screw hole must face the OUTSIDE of the nose cone shoulder. There is an index mark on the base of the Easy Mount which lines up with the screw switch, use that to make sure that the switch will be square with the nose cone shoulder. Drill two 1/16" pilot holes for the screws.

__ With two #4 x ½" self-tapping screws (not included), temporarily attach the Easy Mount to the nose cone. You may have to drill out the holes in the Easy Mount to get the screw through; we recommend using a 3/32" drill bit for the #4 screw. With a fine marker or pencil, mark a line along the screw switch index mark up the shoulder of the nose cone. Remove the Easy Mount.

__ Prepare the 24mm motor mount tube by drawing a line down the center. Make a perpendicular mark ½" from the edge of the tube, then use a hole punch to punch out a hole centered on the mark. Push the motor mount tube over the Easy Mount so that the hole lines up with the screw switch. The tube helps keep the battery in place, and also helps protect the Apogee.



__ Lay the bottom of the nose cone down against a table, and make a mark along the screw switch index line that you marked earlier, exactly ½" from the top of the table. Drill a ¼" or 5/16" hole at the mark.

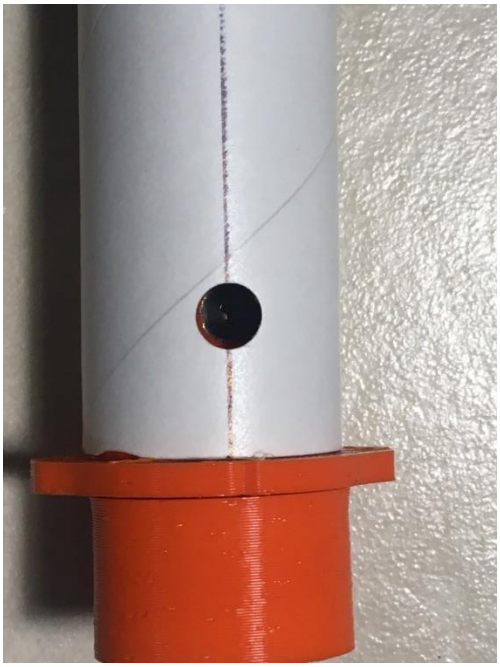
__ Re-insert the Easy Mount into the nose cone. The holes should line up, and you should be able to see the screw switch through the hole. With your #1 screwdriver, insert it into the hole and ensure that you can turn on and off the screw switch. We recommend using a 6" long #1 screwdriver for that… you are not going to be able to get one of those removable-bit all-purpose screwdrivers in the hole, unless you make it really big.

__ If you want to be able to arm the Apogee from the outside without removing the nose cone, measure the distance from the center of the nose cone screw access hole to the shoulder of the nose cone, then make a mark on your rocket's body tube equal to that distance. Drill/cut a suitable access hole, then you should be able to line up the screw switch access holes on the nose cone and the body tube.

Inside Mounting Using the Mounting Ring

If you're building a rocket with bulkplates on either the nose cone or an AV bay (and you want to use the Apogee on the drogue side or single-deploy), you will probably find that it's easier to use the mounting ring. What you are going to do is similar to the outside mounting procedure, except that you'll epoxy the mounting ring inside the bulkplate. That allows you to use the provided #2 machine screws to attach the Easy Mount to your bulkplate. The screws are ¾" long, so you can easily accommodate a plywood bulkplate up to 3/8" thick (the distance from the edge of the main body to the screw switch hole).

__ Prepare the 24mm motor mount tube by drawing a line down the center. Make a perpendicular mark ½" from the edge of the tube, then use a hole punch to punch out a hole centered on the mark. Push the motor mount tube over the Easy Mount so that the hole lines up with the screw switch. The tube helps keep the battery in place, and also helps protect the Apogee.



__ Using the mounting ring as a template, figure out where you're going to mount your Easy Mount. Remember that the screw switch must face the outside of your rocket, if you're using it… you can use the index mark in the mounting ring to locate it. The index mark needs to face the center of your body tube/coupler/payload tube/nose cone shoulder.

__ Draw line down the middle of the long side of the mounting ring, and a perpendicular line down the middle of the short side where the index mark is. The intersection should be the center of the mounting ring.

__ Drill a 1" hole in your bulkplate where the center of the mounting ring will be.

__ Trial fit your Easy Mount into the 1” hole, on the side that will be facing the “inside” of your rocket (the “outside” of your payload bay/nose cone). Trim the hole so the Easy Mount fits in easily but not too loosely.

__ With a 1/16” drill/bit, drill two pilot holes for the screws, using the holes in the Easy Mount’s main body as a template.

__ Test-fit the mounting ring on the opposite side of the bulkplate, so the holes line up with the Easy Mount’s main body. Adjust the holes as nessary.

__ Enlarge the two mounting holes with a 3/32” drill bit.

__ Remove the Easy Mount and the mounting ring, and with some #60 sandpaper rough up the INSIDE of the bulkplate where the mounting ring will go.

__ Mix up some epoxy, and apply some in the INSIDE of the bulkplate, where the mounting ring will go. We recommend that you use a good quality slower epoxy, such as RocketPoxy or West Systems. You can use regular JB Weld too… but don’t use the 5-minute kind.

__ Reinstall the Easy Mount and the retaining ring, and connect them to your bulkplate with the two #2 x ¾” screws.

__ Unscrew the two screws, and gently remove the Easy Mount, leaving the mounting ring in place. If some epoxy seeped into the 1” hole in the bulkplate or the mounting ring, gently remove it with some isopropyl alcohol. Let the bulkplate and mounting ring sit undisturbed until the epoxy sets.

__ If some epoxy got onto the Easy Mount itself, clean it off with isopropyl alcohol.

__ After the epoxy has set, re-fit the Easy Mount, and trim any flash as necessary. Your Easy Mount should be able to be screwed easily into the bulkplate and the retaining ring.

__ With the Easy Mount installed, measure the distance from the inside of the bulkplate to the center of the screw switch. Write down this measurement… this is how far from the inside of the bulkplate you will need to drill for a screw switch access hole.

__ Now, test-fit your bulkplate into your nose cone or AV bay. Mark the position where the screw switch will line up, then mark the distance from the inside

Flying with Your Eggtimer Apogee & Easy Mount

If you've never flown electronic deployments before, you'll find that it takes a few extra steps, and requires a bit more discipline than using motor-deploy. Before we go over them, there are a few rules that you need to know.

First and foremost,

NEVER TRANSPORT YOUR ROCKET WITH POWDER AND A LIVE ALTIMETER!

This means that once you have installed the powder in your charge well at your work table, it needs to be turned **OFF** until the rocket is on the pad and pointing "up". Pretty simple, huh?

IMPORTANT NOTE:

We recommend that you use ONLY a #2 phillips screwdriver with the Easy Mount. A smaller and skinnier one will fit, however it is possible to accidentally short some components on the board with one, and it's also easier to find the center of the screw with a larger #2 screwdriver too because it can't wiggle as much.

Assuming that your Easy Mount is installed in the nose cone:

1) Install an ematch in the charge well.
2) Turn on the screw switch, and wait for the "I'm ready" chirp. This will test continuity on the ematch.
3) TURN OFF THE SCREW SWITCH.
4) Add the powder to the charge well, fill any extra space with a little "dog barf" wadding, then tape the charge well shut.
5) Install the nose cone in your rocket, being careful to line up the screw switch access holes.
6) Finish prepping your rocket, and take it to the RSO/LCO tables to get checked out.
7) Put you rocket on the pad.
8) WHILE VERTICAL, turn on the screw switch. Wait for the "I'm ready" chirp… if you do NOT get it, TURN OFF the screw switch, take it off the pad, and go back to your work table to figure out what's wrong.