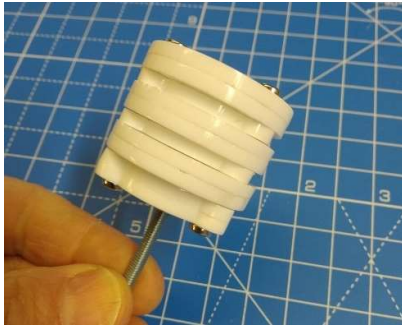


Date:	05/04/2022	Version:	1.0	By:	Matt Little
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Want to measure outdoor temperature and humidity?

If you set up your sensor without a suitable enclosure, then it may not read the correct temperature –direct sunlight or wind onto the sensor can cause in-correct readings.

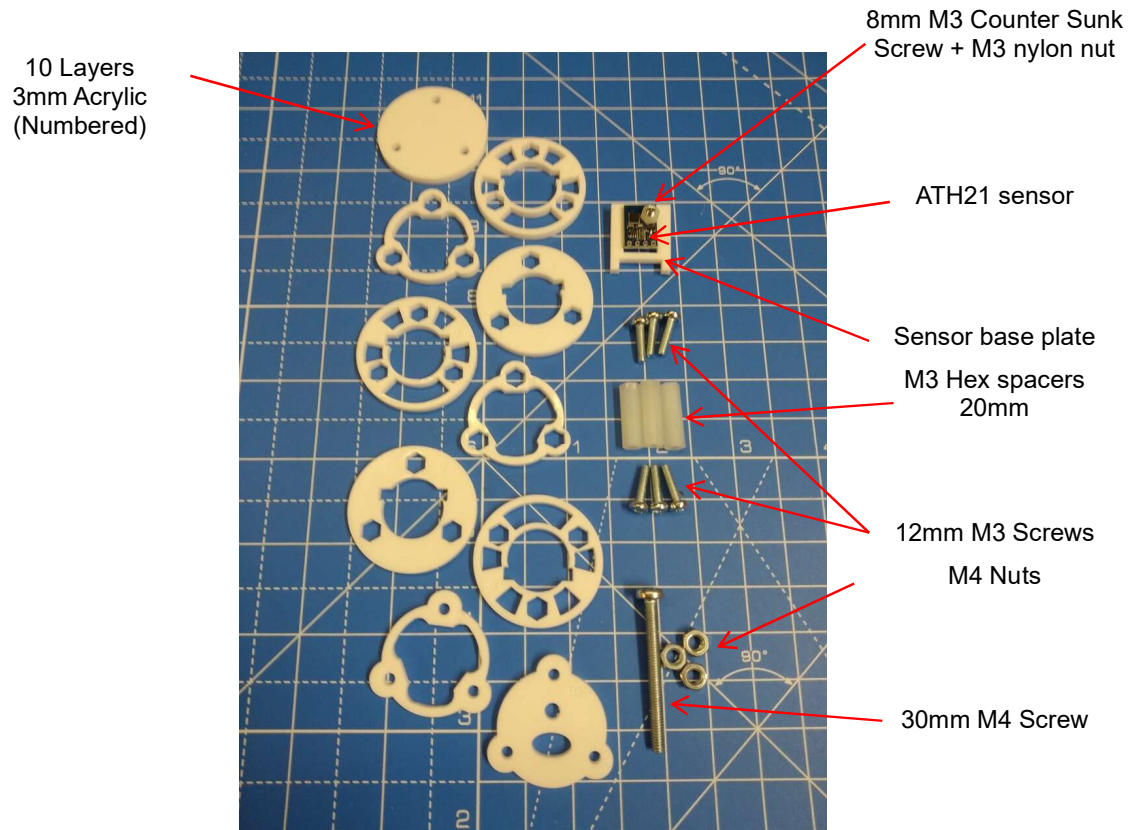
A solar radiation shield like this one protects the sensor from direct sunlight and strong winds, while still allowing it to read the humidity and air temperature.

This is a little solar radiation shield has been designed for a AHT21 temperature and humidity sensor. It could also house other sensors.

This unit is laser cut from acrylic. It is comprised of layers which build up to create the enclosure. Screws at the top and bottom hold it all together.

This is a simple mechanical kit that should not take too long to put together.

Parts included:



PCB Parts List:

Ref	Item	Quantity	Ref	Item	Quantity
	Plastic layers (3mm)	10		30mm M4 screw	1
	Sensor Base Plate	1		M4 nuts	3
	12mm M3 screws	6		8mm M3 countersunk screw	1
	M3 hex spacers 20mm	3		M3 nylon nut	1

Tools required:

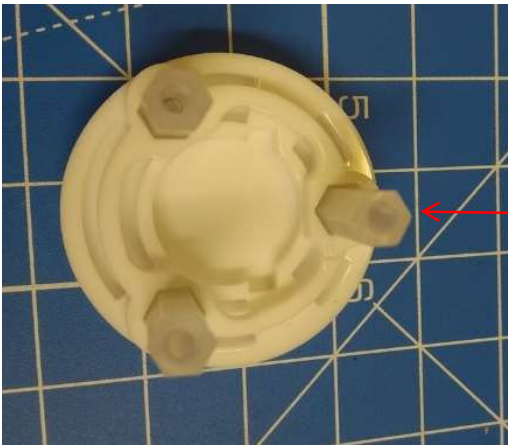
Posi-drive
Screwdrivers

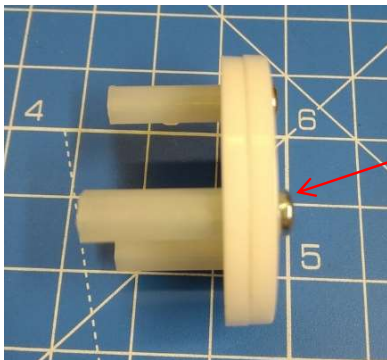


Small
Pliers

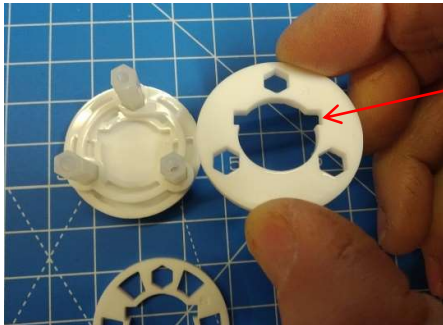
Instructions:

Step: 1	Remove film from back of plastic parts
	<p>The laser cut acrylic parts will have a protective film over one side of them. Please remove this from all acrylic parts.</p> <p>If there are any holes still with acrylic in them (from the laser cutting process) then please push them out and discard.</p>

Step: 2	Build the outer casing
	<p>The unit is comprised of 10 layers of laser cut acrylic. These are numbered from 1 (top) to 10 (base). Ensure you put these on in order from 1 to 10!</p> <p>Place the three hex spacers into the hexagonal holes in layer 2.</p>



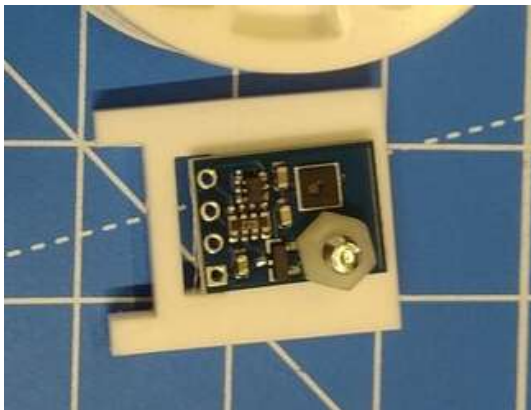
Use three of the 12mm M3 screws to hold layer 1 onto the hex spaces and hold it to layer 1.



Then add the layers from 3 to 8 in sequence.

Ensure the 'notches' all align correctly, one on top of each other. This creates a slot for the sensor base plate to fit.

Step: 3 Add the AHT21 PCB to the Sensor Base Plate



First solder you 4 core wire (not supplied) to the ANT21 PCB. This has power and the I2C connections.

Using the 8mm M3 countersunk screw, hold the AHT21 sensor onto the basse plate, allowing the soldered conenctions to fit into the retangular cut out.

Use the M3 nylon nut to hold in place. This is nylon as it is a bt close to the components and so will not accidentally short anything out.

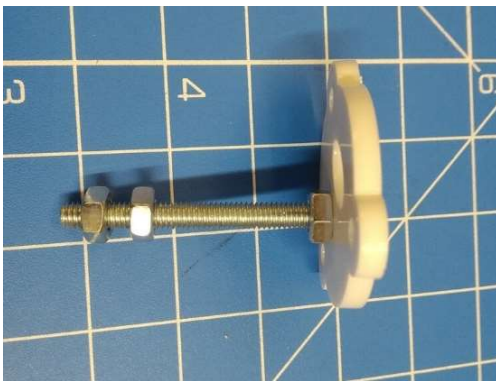


This then slots into the outer case we built in step 1.



Ensure the screw/nut goes into the top of the casing and the cut out at the bottom of the sensor plate is towards you.

Step: 4 Add the M4 screw for mounting

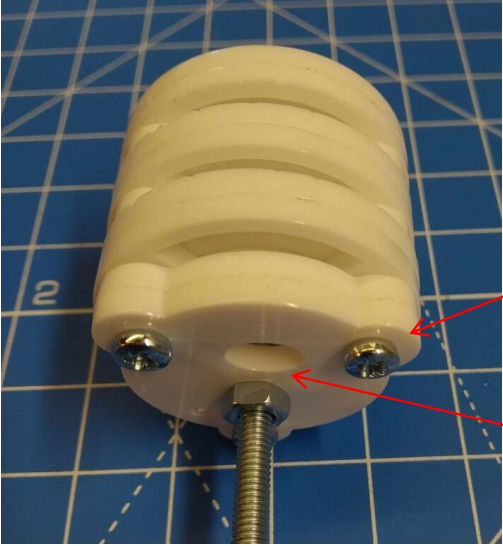



Take the base plate, labelled number 10.

We want to add the long M4 screw and nuts to this. This is used to mount the unit onto whatever bracket you choose.

Place the M4 screw through the round 4mm hole just off-centre on layer 10.

Use a nut to hold the M4 screw in place. Tighten this well, using pliers and a screwdriver.

Step: 5	Add the base to the outer casing.
	<p>We now want to fit the last two layers, numbered 9 and 10.</p> <p>Layer number 9 has 3mm holds (not hexagons).</p> <p>Place the M3 screws up from the base through layers 10 and 9 and into the outer casing we have already built.</p> <p>Make sure your sensor wire comes out through the oval hole in the base. You can silicone this if you would like.</p>

Step: 6	Mount your sensor and test.
	<p>Have a nice cup of tea!</p> <p>You are now ready to mount it outside on whatever bracket you want to use.</p> <p>It will work with a shelving bracket or any right-angle bracket.</p> <p>Use the two M4 nuts on the M4 mounting screw to hold the unit in place.</p> <p>Check that you are getting data from your sensor.</p>

Design Files

These can be found, along with these instructions, in the repository here:

https://github.com/curiouselectric/Sensor_Solar_Shield

Contact details:

This kit has been designed and produced by:

The Curious Electric Company

hello@curiouselectric.co.uk

www.curiouselectric.co.uk

4 Cragland Park, Ulverston, LA12 0TX, UK

We would like you to be happy with this kit. If you are not happy for any reason, then please contact us and we will help to sort it out.

Please email **hello@curiouselectric.co.uk** with any questions or comments.

Please tweet us at **@curiouselectric**

If any parts are missing from your kit, then please email **hello@curiouselectric.co.uk** with details, including where the kit was purchased.

More information can be found via **www.curiouselectric.co.uk**