Hygrometer for Filament Dryer (Sunlu S1 + eSun eBox) - no drilling

Stealinglight

VIEW IN BROWSER

updated 26. 11. 2023 | published 26. 11. 2023

Summary

Hygrometer for Filament Dryer (Sunlu S1 + eSun eBox) - no drilling or glueing

3D Printers > Accessories

From Original Designer:

Summary

I liked the design for a hygrometer holder by Grzegorz Buszewicz, but it never worked out well for me. Just mounting it on the little filament hole was never stable enough and the thin tube (only ~5mm thick with >2mm hole for filament) broke frequently, with the little nut pulling the layers of the screw apart). Additionally I didn't like the "barrel" forcing upward or downward direction and the additional friction on the filament due to the thin hole was also not really an improvement.

Therefore I created my own designs which are mounted on the inside of the base and just leave the hole open and untouched. It consists of two parts now, a base plate mounted to the inside front side of the dryer and a holder for the humidity gauge, which **can easily be inserted or removed even if filament is already loaded and printing**. The result is stable, doesn't shake, nor break easily.

And depending on the hygrometer you prefer, I created versions for the rectangular ones and for the round versions which are very cheap and available in many shops (e.g. here, but many other sources)

The Sunlu mount plate is fixed using the screws of the heating metal (added a strip of Kapton tape for some (minimal) heat isolation. The eSun dryer (eBox) doesn't have any screws, but a thin slit which can be used to insert a "blade".

Because the metal of the Sunlu S1 dryer can get really hot, I meanwhile printed the mount plate for this dryer in ASA, which withstands the heat much better than PETG. ABS is probably also fine - didn't try. But I do not recommend PLA (unless you have a special “high temperature” variant) and also not really PETG for the base plate. For the gauge holder itself and all parts for the eSun eBox PETG is perfectly fine as these parts do not have direct contact to hot metal.

The gauge holders are tilted some degrees to allow easy opening of the cover. And the arm to stick it on the mount plate as a gap at the bottom which is wide enough for the filament to pass through. This way the humidity gauge can be attached or removed any time, also during a print. This is especially useful for the eBox version, because due to the limited space under the round cover, completely full spools might not allow to attach the gauge immediately.

Update 2022-09-16: After having the humidity gauge used for some time also on the maximum temperature of the SunluS1 (which i also use to dry my silica bags - a lot more energy efficient than in the oven in the kitchen), I realized that at the high temperature even PETG mounted directly on the heating metal gets a bit soft. The holder is still working fine, but the front plate is bent a bit at the bottom and no longer standing perfectly upright.
Therefore I added some small stabilizers on the side and put on a second layer of Kapton tape. So if you plan to use max. heat, try the version 2 for Sunlu S1.

Update 2022-09-28: Yet another minor update to the mount plate for the Sunlu S1. I found something much better to shield the plate from the heat of the metal than just thin Kapton tape: silicone. I cut out a small piece of a silicone mat (actually folded it to have two layers) and put it underneath the mount plate. And voila - no more softening of the plastic even on high temperature mode. To compensate for the thickness of the silicone mat, I raised the bottom by 1mm. Don't worry, the screws are still long enough. I used a piece of silicone baking mat, but any heat resistant mat will do, probably also other material with low heat conductive value like cork.

Update 2022-10-07: Added some little plugs (tampions) to close an unused hole (or both if you only dry Silica bags). They should be printed in TPU (or other flex) for perfect fit (although PLA or PETG will probably also work). The cap of the plugs are available in two sizes: 10mm and 12mm. I personally use the 12mm version for the lower (and bigger) hole and the 10mm pin for the upper hole (see picture). The barbel shaped plug for the lower hole need support if printed in one piece - otherwise you can print part1 and part2 separately and glue them together.

Update 2022-12-30: Uploaded a holder for a 32.5mm round gouge on request (eSun eBox version). Also added STEP files for eBox in case you need more modifications

Update 2023-01-04: On the eSun eBox some slightly larger spools seem to scratch on the mount plate (reported by some users). Therefore I added an eBox mount plate versions with cut-outs at the top to allow for larger spools (not necessarily an improvement for stability, but should still be fine and allows for more filament brands)

Update 2023-02-02: Yet another very minor update for the eSun mount plate based on the cut-out version. As I found some larger spools I widened the cut-outs (not to the side walls of the holder) and also added a tiny slope to the blade (only 0.2mm, leading to a single extra layer of the top half) to make sure holder is pushed to the front.

Print Settings

- Printer brand:

Creality

- Printer:

CR-10S

- Rafts:

No

- Supports:

No

- Resolution:

0.2

- Infill:

20%

- Filament brand:

Sunlu

- Filament color:

white

- Filament material:

PETG, ASA or ABS for Sunlu mount

- Notes:

Printed in ASA now for higher heat resistance, but will surely also work with ABS. I recommend a strip of Kapton tape to isolate the plastic a bit from the heating metal (will not help too much, but probably better than nothing, because metal gets quite warm - surely warmer than PLA likes it :-))

All parts (except for Sunlu base plate and the lower plug barbell in one piece) can be laid flat for printing. (If you use Cura, the Auto Orientation plugin will do the job for you) The Sunlu base I printed standing. For me it worked without any support*, although some minor bridging is required

- except for the barbell shaped lower plug of course which needs support if printed in one piece - print part1+part2 instead to avoid support

This remix is based on

Hygrometer for Filament Dryer (Sunlu S1 + eSun eBox) - no drilling

by vivamus3d

Model files

sunlus1-gaugeholderectr.3mf

ebox-gaugeholderrect.stl

ebox-gaugeholderround.stl

ebox-mountplate-withcutouts.stl

lowerplug10mmcap.stl

ebox-mountplate-v2.stl

lowerplug10mmpart1.stl

eboxroundholder-mountplate.step

ebox-mountplate.stl

eboxroundholder-325mmgaugeholder.step

eboxroundholder-325mmgaugeholder.stl

lowerplug12mmpart1.stl

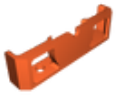
lowerplug12mmcap.stl

sunlus1-gaugeholderectr.stl

sunlus1-gaugeholderround.stl

eboxroundholder-gaugeholder.step

upperplug10mmcap.stl



sunlus1-mountplate-raised1mm.stl

sunlus1-mountplate.stl

sunlus1-mountplatev2.stl

upperplug12mmcap.stl

lowerplug12mmpart2.stl

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lowerplug10mmpart2.stl

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