3D Printer Basics

Printer Specifications:

1. Dimensions sst 1200es
    a. Build Envelope – 254 x 254 x 305 mm (10 x 10 x 12 in.)
    b. Material Spools contain: 922 cm^3 (56.3 in^3)
2. UPrint SE Plus
    a. Build Envelope – 203 x 203 x 152 mm (8 x 8 x 6 in.)
    b. Material Spools contain: 688 cm^3 (42 in^3)

Printer Manual for Dimensions SST 1200es:

1. **Processing you .stl file for printing (p28-29)**
    a. Orientation Consideration:
        i. Build Speed
        ii. Part Strength
        iii. Surface Finish
        iv. STL File Repair
    b. After opening your .stl file in CatalystEX software there are several selections that need to be made regarding the print layout.
        i. **Layer resolution**: 0.010in and 0.013in are the available resolutions. Selecting a smaller resolution will create smoother surface finish but increase build time.
        ii. Layer resolutions have corresponding **minimum wall thicknesses** of 0.036in and 0.047in. *If an .stl file has a feature than is less than the minimum it will change the feature accordingly.*
        iii. **Fill type**:
            1. ***Solid:*** Used for parts that need high strength and durability. *(Longer build times; use of more material)*
            2. ***Sparse High Density:*** Default mode. Highly recommended for majority of parts. *(Shorter build times, reduction of warping, less use of material)*
            3. **Sparse Low Density**: Honeycombed interior. Lowest amount of material use and shortest build times – decreased strength in part.
        iv. **Support Type:**
            1. ***Basic:*** Uses consistent spacing when printing the support path. Could be used for a large majority of parts.
            2. ***Smart:*** This is the default setting because it optimizes the support by changing the spacing and layout of the printed support material path to fit the specific geometry. It saves material, decreases build time and increases the ease of the material removal process. Default for when using the soluble support material.
            3. ***Surround:*** Encloses the entirety of the part with support; typically for long, thin parts.

2. Loading Material (p31-33)

i. ***Process:***

1. Remove from packaging.
2. Remove red sealing plug be twisting the plug a quarter turn counter clockwise and pulling up (*recyclable*).
3. Pull the filament out of the cartridge (*it is flagged*) about 12 inches to ensure that the material feeds freely.
4. Cut off the flag from the material and use the pinch roller to draw the material flush with the surface of the material cartridge. (Roll CW – be careful not to draw the material beyond the pinch roller or you will have to open the cartridge, exposing the material to humidity and reducing its shelf life.)
5. If the printer is in **Idle**, press the **Material** button, which will be blinking.
6. Display will prompt with **Material - Add/Remove** (*flashing*)
7. Insert material cartridges into their appropriate slot from the front of the printer (Model material cartridge goes in the Top slot; Support material goes in the Bottom slot).
8. When the cartridges have been inserted, press **Load** (*flashing*)
9. Display will prompt with **Load Both**, **Load Model** or **Load Support** Press **Load Both**
10. After material has been loaded to the head press **Done.**

3. Unloading Material (p34)

a. If in Idle, press the **Material** button

i. Press **Unload**

ii. It will display the options to: **Unload Both**, **Unload Model**, or **Unload Support**.

iii. The process should take 60-75 seconds once the above option is specified.

iv. The panel will prompt which cartridge to remove: **Remove Model Cartridge** or **Remove Support Cartridge.**

b. Remove the material cartridge by first pushing forward gently to unlock it and then pulling it from the slot. *(Approximately 6 ft. of material will be pulled from the system in the process, unless empty.*)

i. To store the cartridge, flag the material near the cartridge and cut off the remaining material. This prevents the material from being drawn into the cartridge. (*You may want to roll some of the excess material into the cartridge, be sure to leave a couple inches of material in this case.)*

ii. *If empty, please recycle the cartridge.*

4. Daily Maintenance (p39 – 40)

a. Inspect the tip wipe assembly

b. Inspect the tip shrouds

c. Remove debris buildup

i. **Make sure to keep debris away from the print head.**

d. Vacuum build chamber

e. Clean door

f. Empty purge bucket *(may be hot, wear safety gloves*)

i. **Remove by grasping and pushing up to releasing it from the mounts on the back.**
ii. **Empty the bucket**
iii. **When reinstalling, make sure it locks on all mounts and hangs flush to avoid complications.**

5. **Canceling a Job/Auto Power Down/Powering Off (p36-37)**
   a. You can cancel a job at any time while the part is building!
      i. Press **Pause**
      ii. Once the printer physically stops building, Press **Cancel Build**. The panel will prompt: **Are you Sure?**
      iii. Press **Yes.**
      iv. The panel will then prompt you through the process to removing the part from the modeling base and replace the modeling base.
   b. You can set the printers to automatically shut down once a build is completed to save energy.
      i. Press the **Auto Power Down** button WHILE the printer is building.
      ii. Turn the power switch to the OFF position.
   c. Powering OFF
      i.

6. **Troubleshooting Checklist (p54-55)**
   a. **Clogged tip/Material Jam (p57-59)**

Printer manual for uPrint SE Plus (A&B)):

1. **Processing you .stl file for printing (p26-28)**
2. **Daily Maintenance (p34)**
3. **Replacing material into carriers (p32)**
   a. Press **Material**, the panel will display **Add/Remove with S1(remaining %)** and **M1(remaining %).**
   b. Press **Unload**
   c. Select **Unload both, Unload Model**, or **Unload Support**.
   d. Once unloaded, first press in on the carrier first to unlock it and then pull is from the slot.
   e. Place the carrier on a flat surface and open it to rewind the material on the spool or to remove the spool from the carrier.
      i. If storing the material, make sure that the spool does not unwind by securing the material to the spool
         1. Place the material guide in the material guide slop on the spool.
         2. Lock the retaining clips into place around the spool before removing spool from the carrier.

      ii.
   f. To load a new spool of material, first remove it from its packaging.
   g. You must line up the sensor properly in the material carrier and feed a couple inches through to see if it feeds freely.

h. Make sure the end of the material has a blunt end by cutting the tip.
i. Close and latch the carrier; reload the carrier in the designated slot.
j. Press **Load**, the select **Load Model**, **Load Support**, or **Load both.**
k. After it has properly loaded, press **Done**.

4. **Auto power down/Powering off (p32)**
5. **Troubleshooting (p48-49)**
    a. **Clogged Tip (p51)**
    b. **Material Jam (p52-53)**