# Inno3D 3D Printer M1/D1 – Desktop 3D Printer
User Manual

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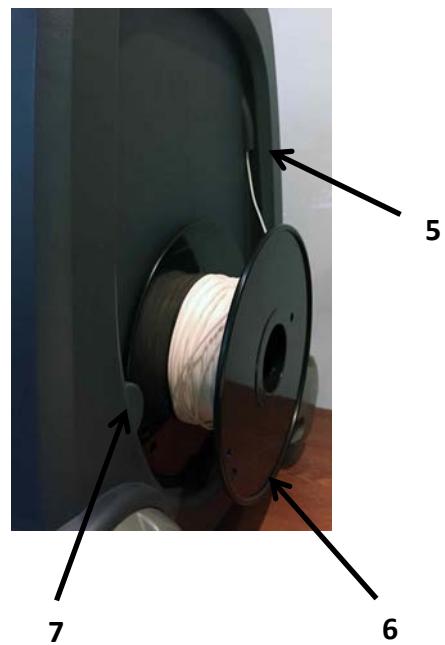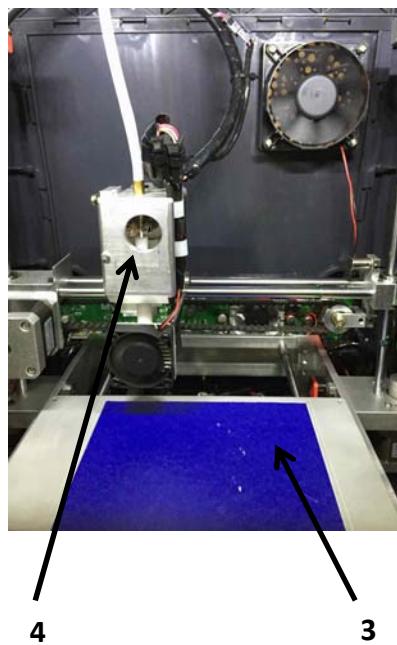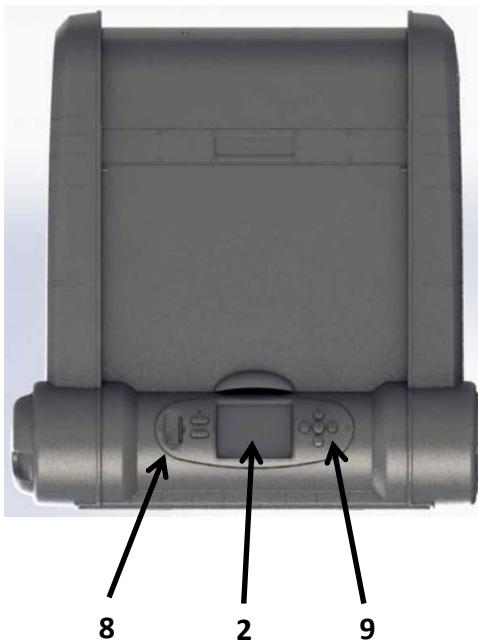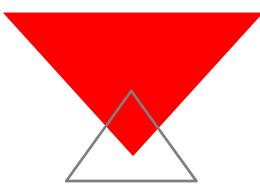
## Section 1:   Accessory list

1. PLA Filament   X 1 Spool (0.5Kg)
2. Filament guide tube   X 1
3. Power Supply Unit   X 1
4. EU Plug power cable   X 1
5. SD-Card   X 1
6. USB-A to USB-B cable   X 1 [1 meter]
7. Quick Start Guide   X 1
8. Build platform mask tape sheet   X 10 pieces
   (For PLA filament printing)
9. Build platform mask tape sheet   X 10 pieces
   (For ABS filament printing)

Section 2:   3D Printer Diagram

1. Power Supply Socket
2. Color LCD touch Panel
3. Build platform
4. Extruder
5. Filament Guide Tube
6. Filament Spool
7. Spool Holder
8. USB connector & SD-Card Slot
9. Printer control keypads
10. Power Switch

Quick Step for First 3D Object printing

| Power on Self-Test | 3D Printer Calibration | Load the Filament | Print the Test Object |
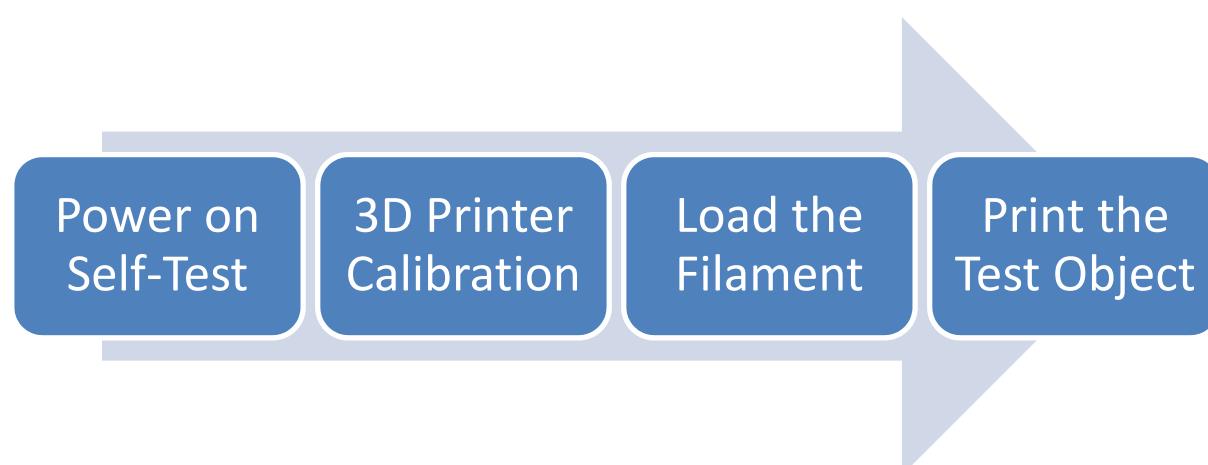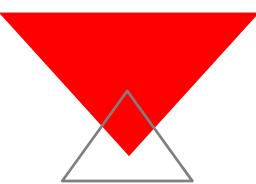
Section 3:   Power on the Inno3D 3D Printer

1. Connect the power cable to the Power supply unit.
   CAUTION: Power cable plug standard is various from different countries, please refer to your country main power standard – wall socket, before plugging in the power cable

   CAUTION: Plug the power cord in wrong position may damage your 3D Printer. Please ensure the power cord is inserted in correct orientation before powering on your 3D Printer


2. Plug the power supply output plug (24V DC) to the 3D Printer power input socket
3. Make sure the Inno3D 3D Printer is turned off
4. Connect the power cable to the wall socket (main AC power outlet)
5. Check all cables are connected with correct orientation
6. Power on the Inno3D 3D Printer by pressing the "Power Switch" on 3D Printer to "I" position
7. System menu will be shown on the LCD panel after Inno3D 3D Printer Startup Logo
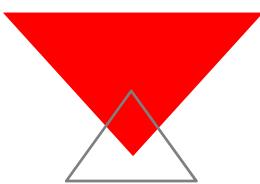
Section 4:   Control and User Interface

Touch Screen Color LCD display – All features can be activated by touching the icon 1-6
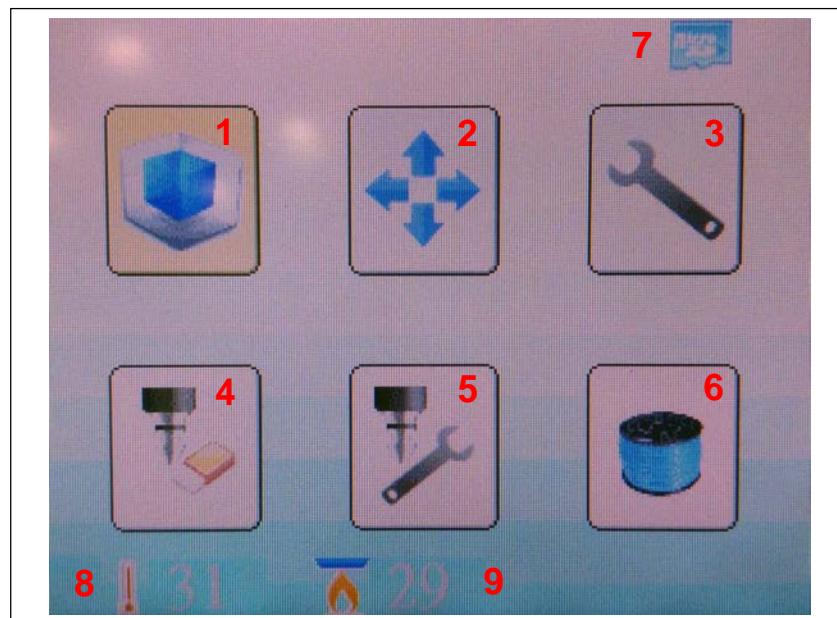
1. Print 3D Object from SD-Card button

2. 3D Printer position control, Temperature and fan control utility

3. System Self-test and Platform Calibration

4. Print Nozzle cleaning process control

5. Print Header replacement control

6. Filament change /or replacement control

7. SD-Card indicator

8. Nozzle temperature indicator

9. Print platform temperature indicator
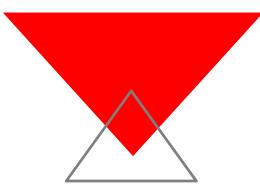
Control the 3D printer using Keypads
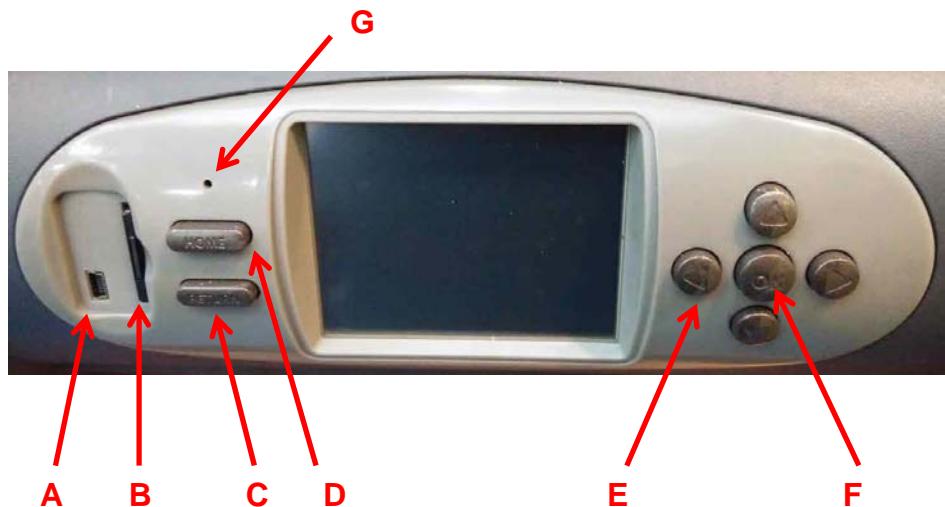
A: USB connector – Connect the 3D Printer to PC

B: SD-Card slot

C: Return Key – return to the previous menu

D: Home Key – return to the home menu

E: Direction keys – Left / Right / Up / Down keys for LCD command navigation

F: OK keys – command execution and confirmation

G: System Reset
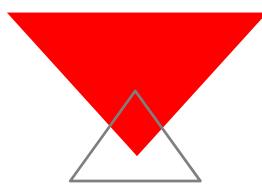
Section 5: Inno3D 3D Printer Self-Test

Performing a system Self-Test before any operation is very important. The Inno3D 3D Printer have a very powerful and built-in "Self-Test" function, most of the possible defects or symptom of the 3D Printer will be avoided by running the Self-Test function.
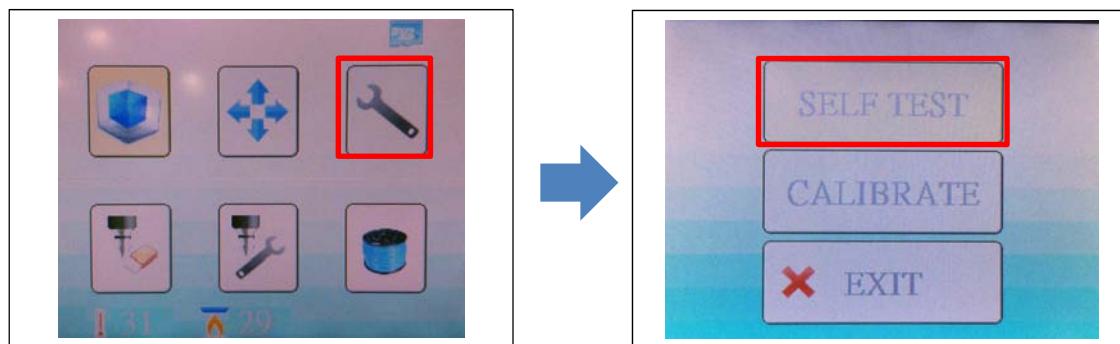
To start the Self-Test function: [SETUP] -> [SELF TEST]

WARNING: Self-testing procedures can only be completed on the 3D Printer System initial startup. If you want to perform the "Self-Test" procedures after 3D Printer operation, please let the system cool down for at least 20 minutes. The Nozzle and build platform should be completely cool down before performing the "Self-test" procedure.
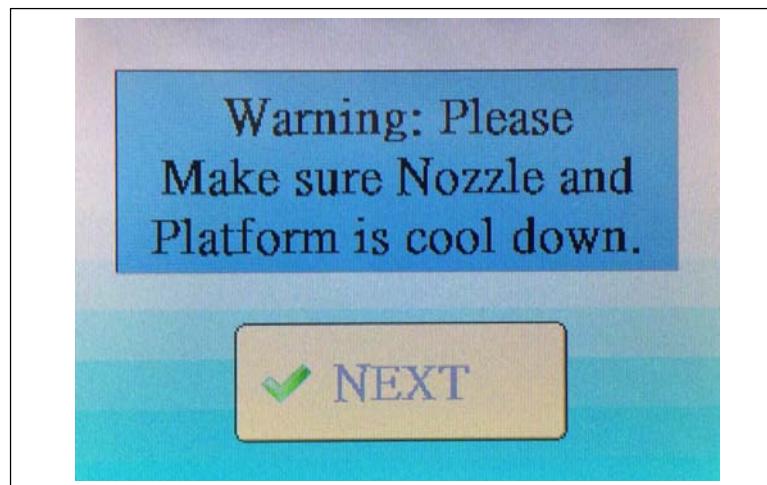

1. Select the "Setup" ->"Self-Test mode" on the LCD panel by touching the "SELF TEST" icon
2. "Self-Test" sub-menu will be display, and you can perform the "Self-Test" one by one.
   a. "System Test" -> Power test -> CPU test -> SD card detect
   b. "Memory test"
   c. "X, Y, Z Axis Driver test"
   d. "Extruder and Build platform test"
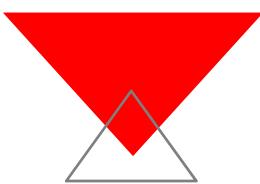
3. System Test checks the following operation of the Inno3D 3D Printer:
    a. 3D Printer main power and CPU operation
    b. SD Card detection
        [If SD-Card test: Fail] Please ensure the bundled SD-Card is inserted in the SD-Card Slot with correct orientation.

4. Memory test
    a. Memory Self-Test checks the entire system memory operation. If Memory Self-Test is fail, please restart the full testing procedure. If the test fails continuously, there might be a problem in the electronic parts of the 3D Printer.

5. "X, Y, Z Axis Driver test" The mechanical test tests the movement of the "X" , "Y" and "Z" axis and check the position limits for the 3D Printer. The Extruder will move across the "X" and "Y" axis during "Mechanical Test", also will move in UP and DOWN position along the "Z" axis in "Z" driver test as well.

6. "Extruder and Build platform test
    a. Why does the Inno3D 3D Printer have to perform the build platform test? The build platform should be kept in a certain temperature during 3D object printing.
        i. PLA material – is around 50 degree Celsius
    b. The Build platform test is to ensure that the 3D printer build platform is controlled in the correct temperature profile, so that the print object will not be deformed during the print operation

Self-Test Result:

If any test result during "Self Test" is "Fail", Please try to power off the 3D printer. Power it one about 10 minutes later and run the "Self-test" function again. If the test result is still Fail, you should stop any further operation instruction in this manual. Power off the system and you should report the issue through email to our technical support team immediately. (Technical Support information can be found in Appendix One of this user guide)

| Power test: OK CPU test: OK SD card: OK	X driver: OK Y driver: OK Z driver: OK	Nozzle: OK Hot bed: OK	END OF TEST result : PASS
✔ NEXT	✔ NEXT	✔ NEXT	✔ NEXT
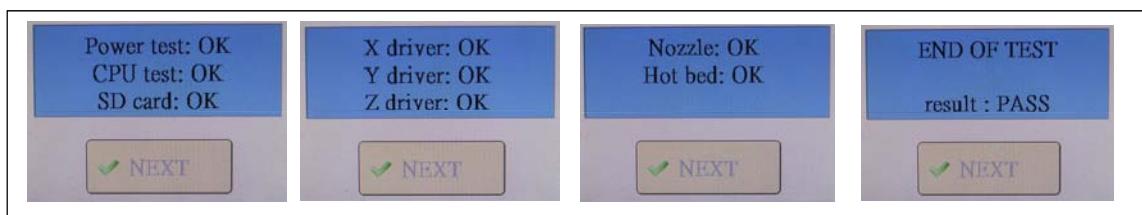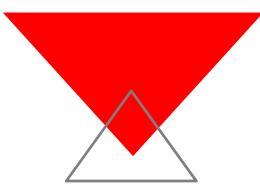
Section 5:   Leveling the build Platform

For the best print result, the 3D Printer should be kept in exact horizontal alignment (same horizontal level of left and right position). The following section explains the automatic build platform leveling feature in this Inno3D 3D Printer.

To start the leveling function: [SETUP] -> [Calibration] -> [Platform]

1. Click the "CALIBRATE" icon under "SETUP" menu.

2. Select the "Platform" [This will calibrate the X-Axis and Y-Axis position of the 3D Printer]
    a. 3D Printer will calibrate the "X" and "Y" position level by moving the Extruder back and forth along the axis.
    b. After series of calibration processes, a message will be displayed on the LCD panel which guides you to the next step of leveling the build platform
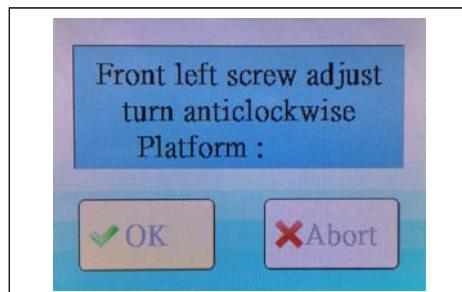
    c. Follow the instructions on the LCD panel:
        i. The above figure shows the instruction "Front left screw adjust turn anticlockwise
        ii. Turn the Front left screw, which is located at the top of the left vertical stand, "anticlockwise" until the message [**Platform: touch**] appears
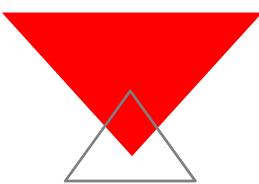
iii. Press "OK" , The leveling procedure will start to check the platform again and automatically corrects the build platform level.
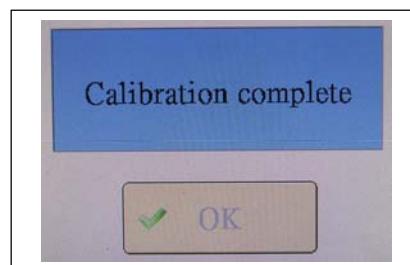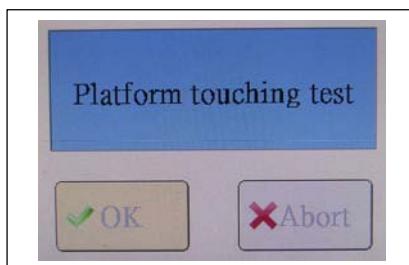

Section 6:   Loading Filament

After 3D Printer self-testing and build platform leveling steps are completed, now you can load the Filament spool to the 3D Printer.

1. Un-pack the bundled PLA filament from the Vacuum packing
   [**CAUTION**: ONLY the approved Filaments or our bundled Filament should be used in the Inno3D 3D Printer, no guarantee for the print object quality or any machine damage if a third party or unapproved Filament is used]
   [Inno3D only guarantees full service and support when using Inno3D branded and approved filament. The quality of printed models could be affected negatively by using other brands or low cost filament. The quality of filament cannot be seen from the outside, but consistent quality on the spools and a stable melting temperature of the filament on the spools are extremely important to produce top quality prints. Secondly low quality and instable temperature controlled filament will possibly damage the print head and would have to be replaced.

   By using third party filament, Inno3D does not guarantee free replacement of the print head in case of product quality issues.
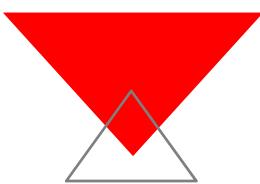
2. Insert the Filament to the Filament Guide tube and gently move it out from the other end of the tube.

Filament Guide Tube
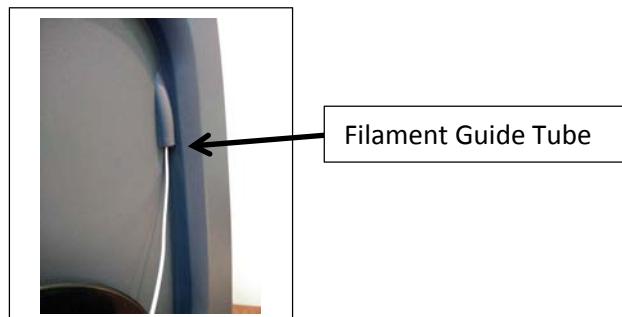
3. Select the "Wire Change" feature in the LCD touch panel


Filament Change
Prepare
(83%)
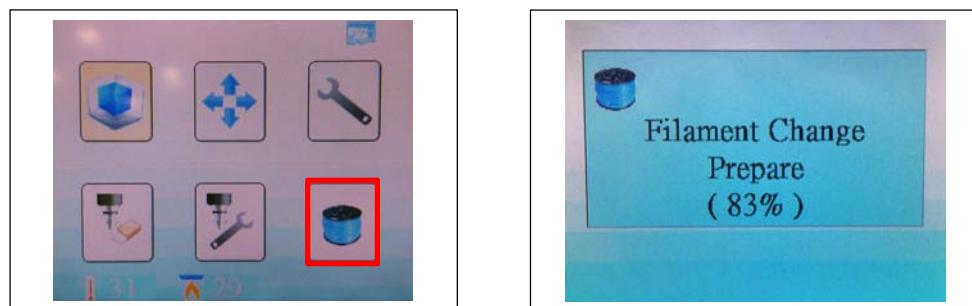
4. If the filament is already inserted in the Extruder, The 3D Printer will first release your filament from Extruder by pulling the filament out. After completing the filament releasing process, you can load the new filament by holding the Filament tight and push it into the Extruder [Ensure that the filament is pushed over the bearing of the Extruder]

Push the filament to the Extruder and press "Load" button
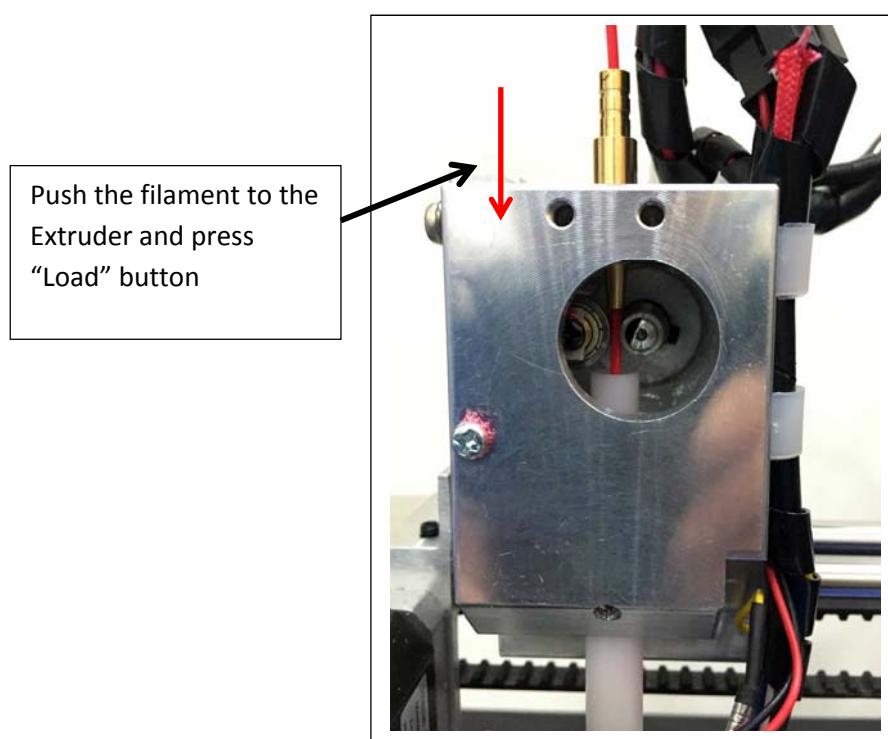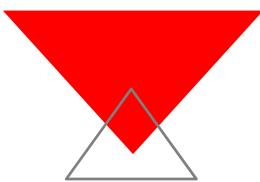
5. Press the [Load] button on the LCD touch panel, the Filament will be fed into the Extruder. You can see the filament comes out from the nozzle part of the Extruder.

6. Keep pressing the [Load] button on the LCD touch panel, you can see the filament comes out from the nozzle part of the Extruder.

Test the printer with pre-built print object: [SETUP] -> [Calibrate] -> [Print Test]
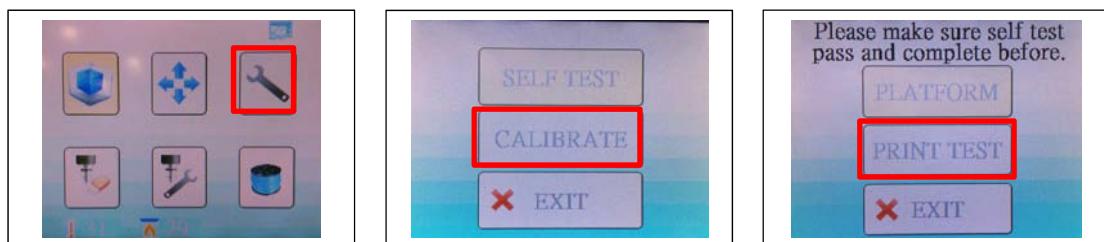
1. Press the "PRINT TEST" icon in the "Calibrate" sub-menu.
2. Before printing the test object, please ensure the PLA print tape (Blue Color) is stick on the print platform and select "YES".
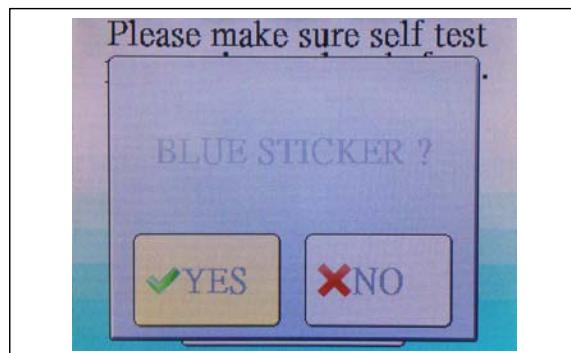
3. After selecting all settings, the 3D printer is ready for printing the test model: 20mm X 20mm X 5mm (height) object, which marked with X, Y locations.
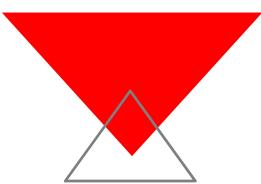
Congratulations!!!   Your Inno3D 3D Printer is ready to use. Now you can create your own 3D objects and enjoy 3D Printing.

Section 7:   Using Printer Software

1. **Application Software installation:**

    Before you begin:

    System requirement :

    - Microsoft® Windows® 7 / 8 with 8GB system memory

    - Intel® or AMD® system with Dual-core processor or above

    - Minimum 20GB free space is available

    The application software and USB driver for your Inno3D 3D Printer can be found in the bundled SD-Card in the "Application" folder, or it can be downloaded from our website.

    a. Install the USB driver for your Inno3D 3D Printer
        i. Double click the file "CDM v2.08.30 WHQL Certified.exe", and follow the on screen instruction by pressing "next". The USB driver for Inno3D 3D Printer will be installed in your system automatically.
    b. Install the Inno3D 3D Printer Application
        i. Double click the "3DPrint.exe" file and follows the on screen instruction by pressing "next" –> "Agree." -> "Install" . The Inno3D 3D Printer application software will be installed on your system automatically.

2. **Before starting the Application:**

    a. The Inno3D 3D Printer data file is in "Gcode" file format, all 3D objects which are created in your 3D application software, for example: Autodesk® 123D Design™ must be converted to "Gcode" format before printing.

    b. The bundled 3D Print application is the software which can convert your 3D objects to "Gcode" file for printing.

    c. The Inno3D 3D Printer application only imports the 3D file in "STL" file format. To print your 3D objects, the objects should be **"Save As…" -> STL file format.**
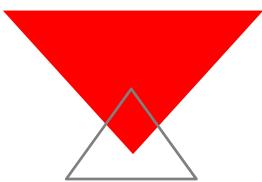
3. **Convert the 3D STL file to a Gcode file for your Inno3D 3D Printer:**
   a. Double click the 3D Print Application software, and wait the application start.
   b. Only 5 easy steps to print your 3D Object in the application.
      i. "Import"
      ii. "Centre"
      iii. "Orient"
   iv. "Select your print profile"
      v. "Build"

4. **Import:**
   a. Import the 3D Object into the application (with .STL file format)
      note:
      - The 3D Print application supports both "ASCII" and "Binary" STL file format
      - 3D Object print out quality will be affected by the 3D Object resolution during STL export from your 3D creation application.

5. **Centre:**
   a. Press "Centre" icon, the 3D Object will be placed in the Centre position of the build platform

6. **Orientation:**
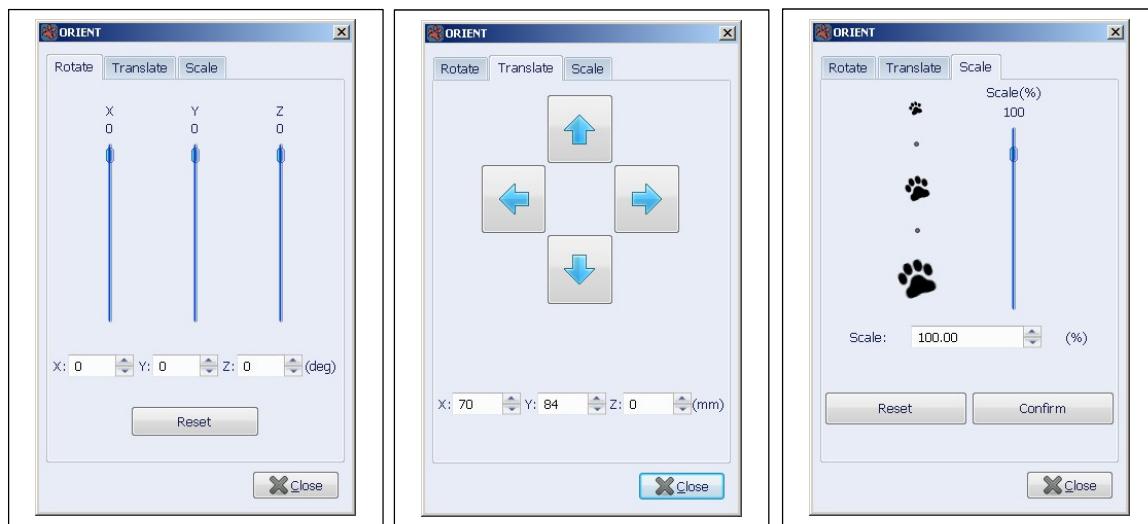
a. Rotate:
   i. Place your object in different direction by rotating it on X, Y, or Z axis.

b. Translate:
   i. Move the object in any direction within the build platform, by pressing the "Up", "Down", "Left", "Right" arrow key.

c. Scale:
   i. If the 3D Object is too big or too small for printing, you can use the "Scale" to adjust the 3D Object size, so that it can be fitted in the build platform.
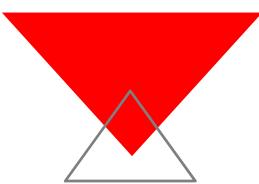
7. **Select your print profile:**
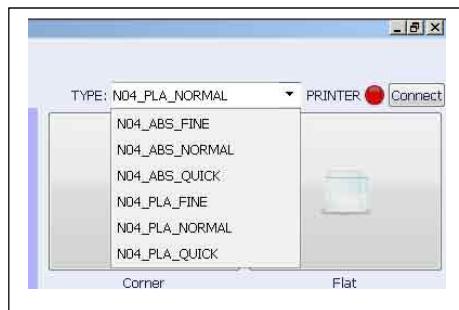
N04F = use 0.4mm nozzle to print
PLA = PLA filament
ABS = ABS filament
FINE = 0.13mm layer resolution
NORMAL = 0.2mm layer resolution
QUICK = 0.3mm layer resolution

a. Before you print the 3D Object, the print parameter should be selected first.
b. The print profile can be selected at the upper right drop down menu of the application software.
c. If the filament is PLA, - you should select the "PLA" profiles, select "ABS" for ABS filament printing.
d. The Inno3D 3D Printer extruder is bundled with the "N04F" nozzle – This will be the default setting
e. Select the layer resolution – 0.13 mm will be the best resolution
   (print time is longer)
f. Select the layer resolution – 0.3 mm can have the quick print out but less details.

8. **Build:**
   a. After selecting the print profile and pressing the build icon, the file which you have imported will be converted to "Inno3D 3D Printer GCode" format automatically. The converted file will automatically be placed in the folder where the STL file was stored as well.
   b. Before building the Gcode file, a dialog box will be open for necessary print parameters setup.
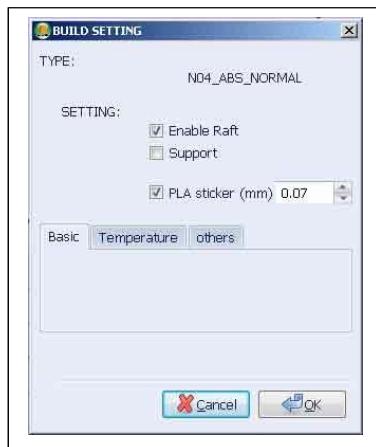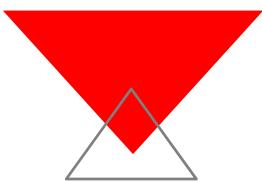
    i. Enable Raft:
1. Raft is a technique used to prevent warping. Your 3D Object is printed on top of a "raft", a bottom plate – very thin layer of plastic instead of directly being built on the build surface. The raft will be printed larger than the object and creates adhesion surface with the build platform.

    ii. Print with Support:
1. Enabling the support feature is very important for floating objects or objects with floating parts.   The supporting material can be easily removed from the 3D Object

   **iii. Enable Platform Tape:**
1. Platform Tape is a 140mm x 140mm sticker which bundled with Inno3D 3D Printer. With Platform tape, your print object will not be deformed or bended during the print process.
2. Platform tape is recommend for all Plastic material printing
3. If Platform tape is selected, by default the thickness

Print with **PLA filament**: Uses blue color PLA tape – Thickness should be **0.12mm** for the bundled tape.

Print with **ABS filament**: Uses white color ABS tape – Thickness should be **0.07mm** for the bundled tape.
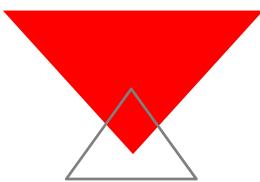
Print from SD-Card:

c.   If you want to keep the Gcode print file in SD-Card and print it later, just simple browse the folder (.gcode file will be generated in the same folder of your STL object which you were imported for converting). Copy it to the SD-Card.

d.   Insert the SD-Card to the Inno3D 3D Printer
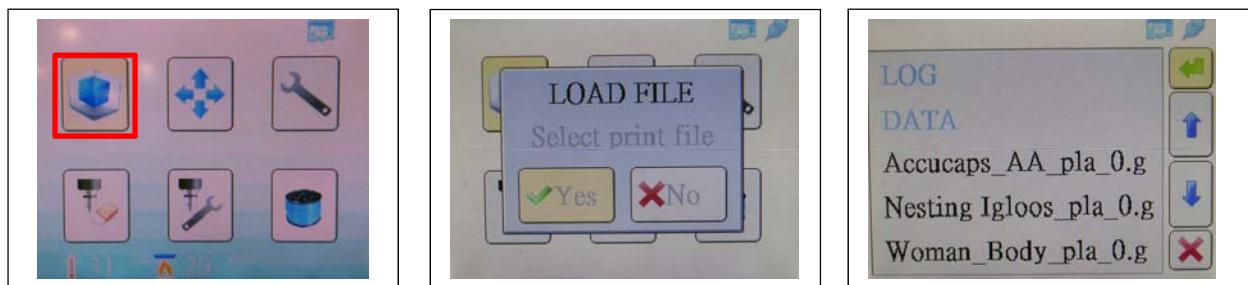
e.   Press the "Print" icon in the front menu
f.   Press "Yes" to select Loading the print file from the SD-Card
g.   Browse and select the file which you want to print
h.   Select it and press "Print"

Nozzle temperature

Build platform temperature
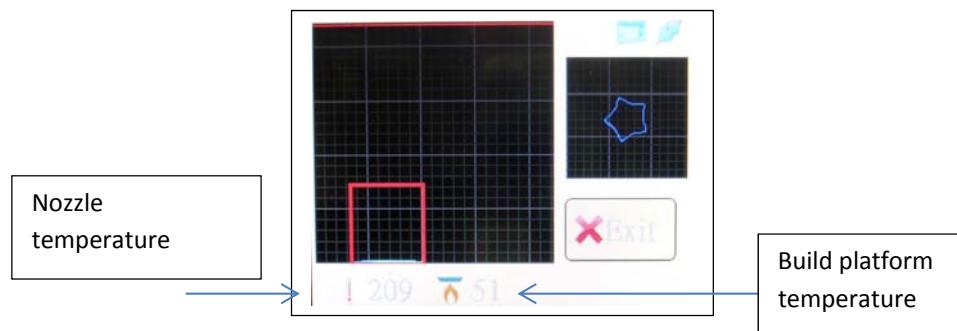
i.   Please wait until the Nozzle temperature and the Build platform temperature reaches the level suitable for printing.
-For PLA printing – will be around 190 degree Celsius for nozzle, and 50 degree Celsius for build platform.

[CAUTION]: Don't touch the Extruder and Platform by hand during Extruder and platform pre-heat or printing. Extremely high temperature on the Extruder and Platform.
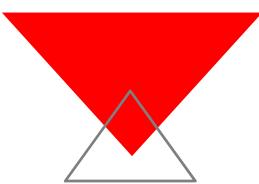
Print from computer with USB cable connection:

9. Connect the Inno3D 3D Printer to your Personal computer with bundled USB cable:
   a. Power off the Inno3D 3D Printer and your PC
   b. Connect the bundled USB cable from the PC USB port to the Inno3D 3D Printer USB port
   c. Power-on the Inno3D 3D Printer and your PC for connection.
   d. Execute the Inno3D 3D Printer application

TYPE: PLA_N04G_L012_DD ▼ PRINTER ● Connect
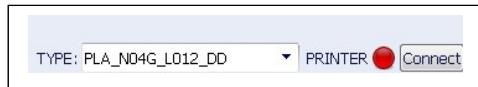
Click the "Connect" icon in application, the icon indicator will be changed to "Green" color if the Inno3D Printer is connected to your PC successfully.

   e. Follow the procedures on how to use the Inno3D 3D Printer application
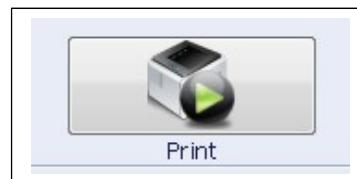
Print

   f. Press the "Print" icon to print the 3D Object directly to the Inno3D 3D Printer.
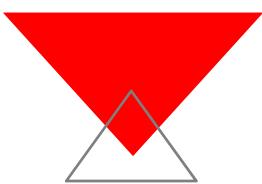
Appendix I:

General Safety

CAUTION: The power supplies and internal circuitry in the Inno3D Printer system may produce high voltages and energy hazards, which can cause bodily harm. Only trained service technicians are authorized to remove the covers and access any of the components inside the 3D Printer.

CAUTION: The Inno3D Printer should be "Power Off" by pressing the power switch to "OFF" position before connecting or disconnecting the main power supply cables.

CAUTION: Plug the power cord in wrong position may damage your 3D Printer. Please ensure the power cord is inserted in correct orientation before powering on your 3D Printer


WARNING: To prevent the spread of fire, keep candles or other open flames away from the 3D Printer at all times.
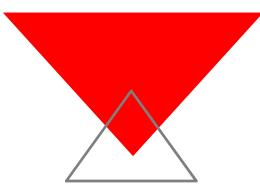
When operating your 3D Printer:

- Do not restrict airflow into the 3D Printer by blocking any vents or air intakes.
- Avoid placing loose papers underneath your 3D Printer
- Do not push any objects into the air vents or openings of your 3D Printer. Doing so can cause fire or electric shock by shorting out interior components
- Do not use your 3D Printer in a wet environment, for example, near a bath tub, sink, or swimming pool or in a wet basement.
- To help prevent electric shock, plug the 3D Printer power cables into properly grounded electrical outlets. This cable is equipped with three-prong plugs to help ensure proper grounding. Do not use adapter plugs or remove the grounding prong from a cable. If you must use an extension cable, use a 3-wire cable with properly grounded plugs.

- Position 3D Printer cable and power cables carefully. Route cables so that they cannot be stepped on or tripped over. Be sure that nothing rests on any cables.
- Do no modify power cables or plugs. Consult a licensed electrician or your power company for site modification. Always follow your local/national wiring rules.
- Before you clean your 3D Printer, disconnect power cable from the electrical outlet. Clean your 3D Printer with a soft cloth only. Do not use liquids or aerosol cleaners, which may contain flammable substances.
- Clean the air vents on sides of the 3D Printer with a clean, damp cloth. Lint, dust and other foreign materials can block the vents and restrict the airflow.
- The optimal operating temperature and humidity for the 3D printer is between 10C and 35C, and humidity of between 20% and 50% (Relative Humidity with Non-condensing environment); Operating outside these limits may result in low quality print models.

- Power off the 3D Printer and disconnect the power cable from the power outlet in any of the following cases:
    - If there is any smoke coming from the 3D printer
    - If the product is making an unusual noise not heard during normal operation
    - Any metal or a liquid touches the internal parts of the 3D Printer, and/or Extruder
    - During an electrical storm
    - During a power failure
- Always leave the print model on print platform until it is completely cool down
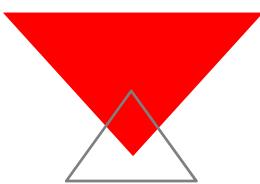
Appendix II:

RADIO AND TELEVISION INTERFERENCE

FCC Statement

1. This device complies with Part 15 of the FCC Rules.
   Operation is subject to the following two conditions:

   (1) This device may not cause harmful interference, and
   (2) This device must accept any interference received, including interference that may cause undesired operation.

2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the Federal Communications Commission (FCC) rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You may also find helpful the following booklet, prepared by the FCC: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.
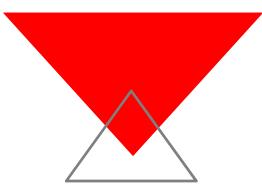
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