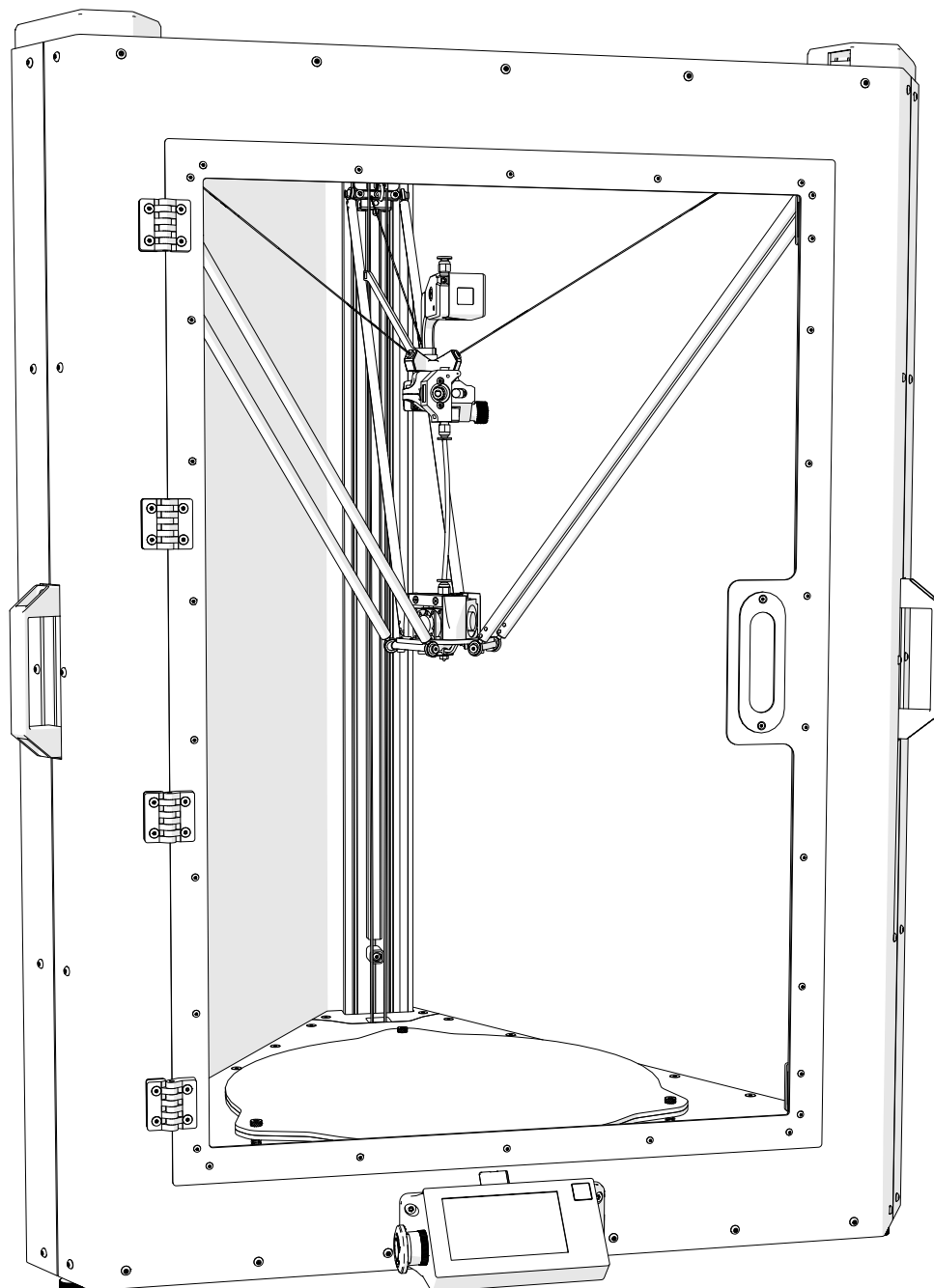


USER MANUAL

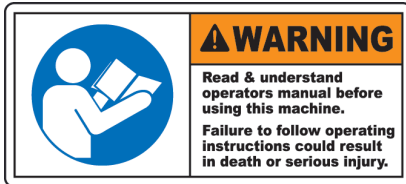
ATLAS TECHNIK SERIES

3DBNZ



This guide will take you through the steps to set up and operate your 3DBNZ ATLAS 3D printer.

Version 1
Revision A



READ THE MANUAL BEFORE POWERING ON THE 3D PRINTER

TECHNICAL SUPPORT

For any questions or problems with 3DBNZ products, please contact us at:

3DBNZ
Ul Wilcza 4
Ustka 76-270
Poland
www.3dbnz.com
info@3dbnz.com



LIST OF CONSUMABLE COMPONENTS

This document lists the Consumable components that, for its natural deterioration, are excluded from the Warranty:

Nozzle (Hotend), Bowden Tube, Push-fits, Filament Spools, Build plate.

3DBNZ grants this Warranty to the ATLAS brand Product users.

This Warranty is only valid in the country where the product has been purchased originally, as long as it is member of the European Union, Iceland, Norway, Switzerland, Liechtenstein or Turkey. Otherwise, review the Warranty for non EU countries.

3DBNZ guarantees that, within the Warranty Period, 3DBNZ or an authorized service company will correct, in a reasonable commercial time, the claims related with the non-conforming Product according to the following clauses.

WARRANTY PERIOD

The Warranty Period starts when the Product is first delivered to the end-user.

The Warranty period lasts twelve (12) months. Both the parts that suffer wear and tear due to the normal operation of the Product and the "Consumable" elements are not covered by this Warranty.

The present Warranty is invalidated in case of incurring in any of the cases listed in the Exclusions chapter. In case of resale, repair or substitution of the Products the Warranty is not extended. The repaired or substituted parts are covered until the end of the Warranty Period or during six (6) months, depending on which date is later.



To avoid potential residual risks the user should read and understand the following safety measures (you are strongly advised to read this before using the machine).

To highlight the areas where extra care should be taken, safety alert stickers have been affixed to the relevant parts of the machine to warn the user of potential hazards.

Any modifications made to the machine without the manufacturer's approval will invalidate the product's warranty.

Consequently, BNZ3D ARE EXEMPT FROM ANY LIABILITY IF THE USER DOES NOT FOLLOW THE INSTRUCTIONS FOR USE:

SAFETY GUIDELINES & WARNINGS

The following safety guidelines, as well as the instructions within this user manual, ensure the safety of the user while operating and maintaining the ATLAS printer. If the printer is not operated as specified, the operator's safety may be compromised.

First Aid

- All operators should have access to first aid equipment and know how to use it.

Installation

- Connect the printer to the safety-certified power cord supplied with the machine. The electrical outlet should be near the printer and easily accessible.
- Never connect the printer to an outlet that does not have a ground wire. Disconnecting the ground wire may result in electric shock.

Operation

- The 3DBNZ ATLAS printer generates high temperatures in the print nozzle and the print bed—do not touch when hot. Allow the unit to cool before touching.
- Do not set objects on the heated print bed. Do not lean or stand on the print bed. Doing so may cause injury to the operator.
- Due to high temperature outputs and moving parts, the location where the printer is operating should be equipped with working smoke and flame detection.
- The 3DBNZ ATLAS printer melts material during printing. Some materials may require ventilation.
- Do not leave the 3DBNZ ATLAS printer unattended while in operation.
- The 3DBNZ ATLAS includes linear actuators that move in multiple directions at variant speeds. When in motion, they may cause injury.
- Do not place head or any other body part near the print head or nozzle, as injury may occur if pinched between the print bed and the nozzle.
- In case of emergency, unplug the unit from the electrical outlet.

Maintenance

- All maintenance shall be performed according to the manufacturers guidelines and instructions. Failure to follow the guidelines may cause injury.
- When maintaining equipment that is hot, wear gloves to avoid injury.

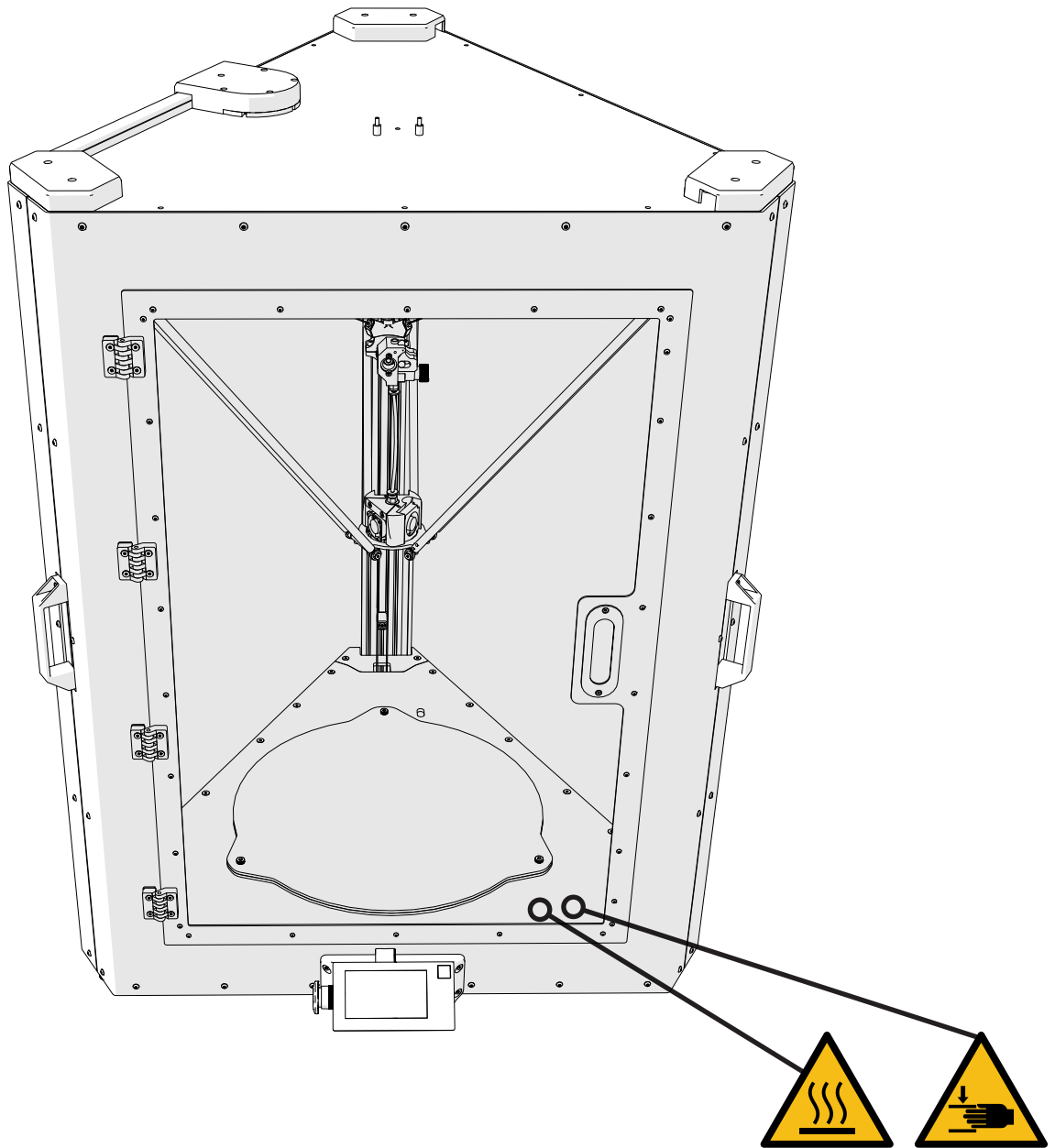
INTENDED USE





Each 3DBNZ ATLAS 3D printer is tested, prior to shipment, to ensure proper functionality.

- This printer is intended for professional use by an operator with the ability to read instructions, having basic/low level knowledge of electronics, mechanics, and computers in general.
- Intended for printing 3D objects with materials manufactured for the FFF—fused filament fabrication—type of 3D printing.
- To be operated under normal operating conditions as specified within this manual.
- Not intended to be used by children or persons not familiar with the operating and safety instructions. Use by unqualified persons may be dangerous to the user and/or damaging to the printer. Printer damage due to mis-use is not covered by the warranty.
- Any modifications to the 3D printer are at your own risk and will void the warranty. The manufacturer cannot be held responsible for modifications made by other persons.

SAFETY AND WARNING SYMBOLS

The following stickers have been affixed to the printer to warn users about the hazardous areas of the machine, and actions which are not recommended as they will stop the machine from working properly.



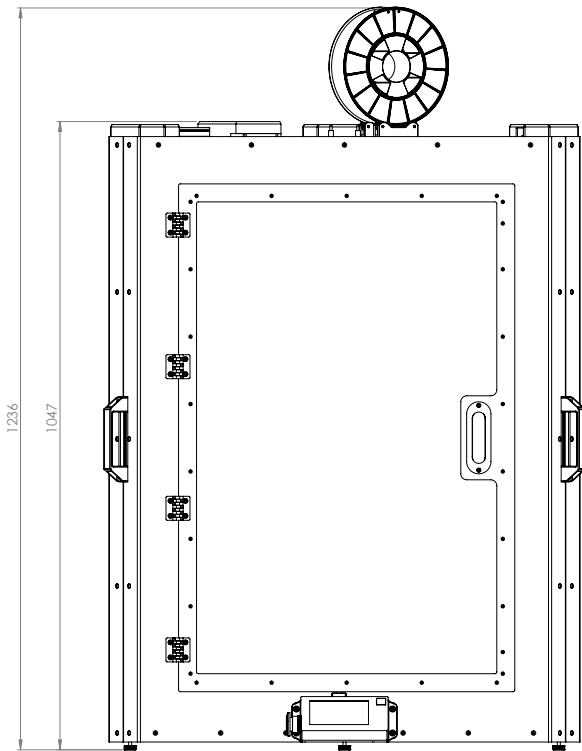
Warning Symbol	Meaning	Location	Comments
	WARNING HOT SURFACE	<ul style="list-style-type: none"> • Print nozzle • Print bed 	A hot surface is located in the vicinity (do not touch).
	CRUSHING OF HANDS	<ul style="list-style-type: none"> • X axis • Y axis • Z axis 	When in motion, the Atlas linear actuators that move in multiple directions at variant speeds may be a pinch hazard (low risk due to force limitation)
	ON	<ul style="list-style-type: none"> • Rear panel of electrical box 	Turns the machine on.
	OFF	<ul style="list-style-type: none"> • Rear panel of electrical box 	Turn the machine off.

TECHNICAL SPECIFICATIONS

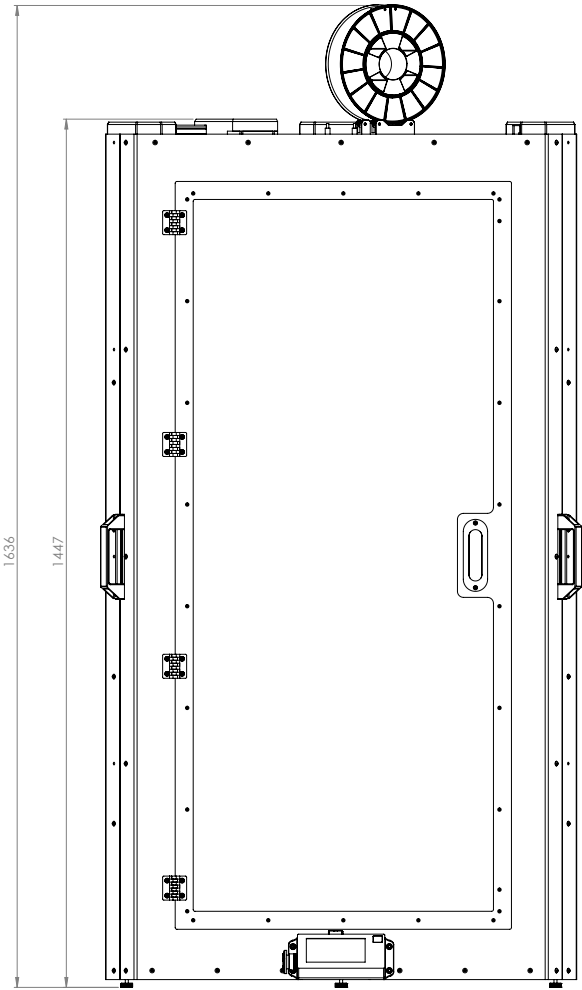
Model name	ATLAS TECHNIK 4030	ATLAS TECHNIK 4070
MECHANICS		
Chasis	Aluminium	
Enclosure	Steel - Powder Coated RAL7035	
Kinematics	Steel guide with recirculating balls / Anti backlash spherical joints	
Motors	Axis: Nema 23 1.8° - 9Kg-cm / Extruder: Nema 11 1.8° - 13:1 ratio	
Drivers	Trinamic TMC2660	
Motion transmission	GT2 9 mm belt	
Endstops	Optical	
Build surface	Ceraplate® (ceramic)	
DIMENSIONS		
General Dimensions	795 x 802 x 1047 mm	795 x 802 x 1447 mm
Weight	85 Kg (without filament spools)	110 Kg (without filament spools)
ELECTRICAL		
Input	100-120 VAC / 200-240V 50-60Hz	
Energy consumption	1750W Heaters on - 71.5W Standby	
System voltage	24v	
TEMPERATURES		
Operating temperature	15-35°C	
Stocking	0-30°C	
Hotend	max 350° C / 400°C optional	
Heated bed	max 120° C / 150°C optional	
Hotend cooling	30x30x10 24v fan - 5 CFM	
Internal electronics cooling	Thermostatic 80x80x20 24v fan	
INFORMATIONS		
Manufacturing technology	Fused filament fabrication (FFF)	
Printing volume	Cylindrical 400mm Ø x 300mm height	Cylindrical 400mm Ø x 700mm height
Nozzle size	0,4 mm (standard) 0,6 / 0,8 / 1,0 / 1,2 / available	
Layer height	0,1 mm < 0,6 mm	
Repetability	XY: 0,1mm / Z: 0,1mm	
Filament diameter	1,75 mm	
Compatible materials	ABS, ASA, PP, HIPS, PETG, PLA, PET, STYX-12 Nylon, TPU, Composite: Wood, Carbon, Stone, Metal	
Internal Storage	4 Gb expandable to 32 Gb	
SOFTWARE		
CPU	32 bit	
Host operating system	Windows XP-7-8-10, Mac OSX, Linux	
Slicing Software	Simplify3D, Cura, Kisslicer, slic3r, etc.	
Firmware	RepRap firmware	
Management	Web Control Interface	
File format	.gcode	
CONNECTIVITY		
LCD	4.3" Colour LCD Touch Panel	
NETWORKING	RJ45 Ethernet or 4Ghz Wifi Networks	
USB	Type A	
FILE TRANSFER	SD Card / Ethernet / FTP	

DIMENSIONS

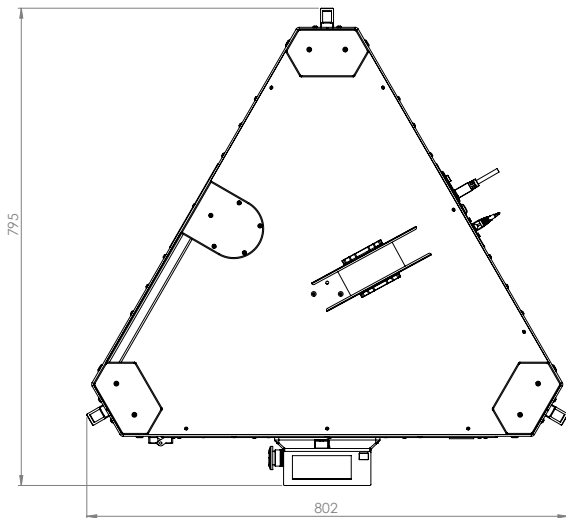
Printer dimensions illustrated below.



4030

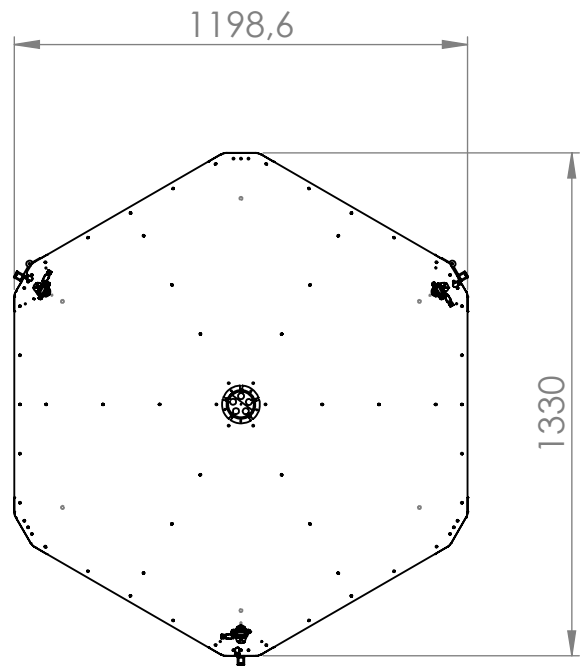
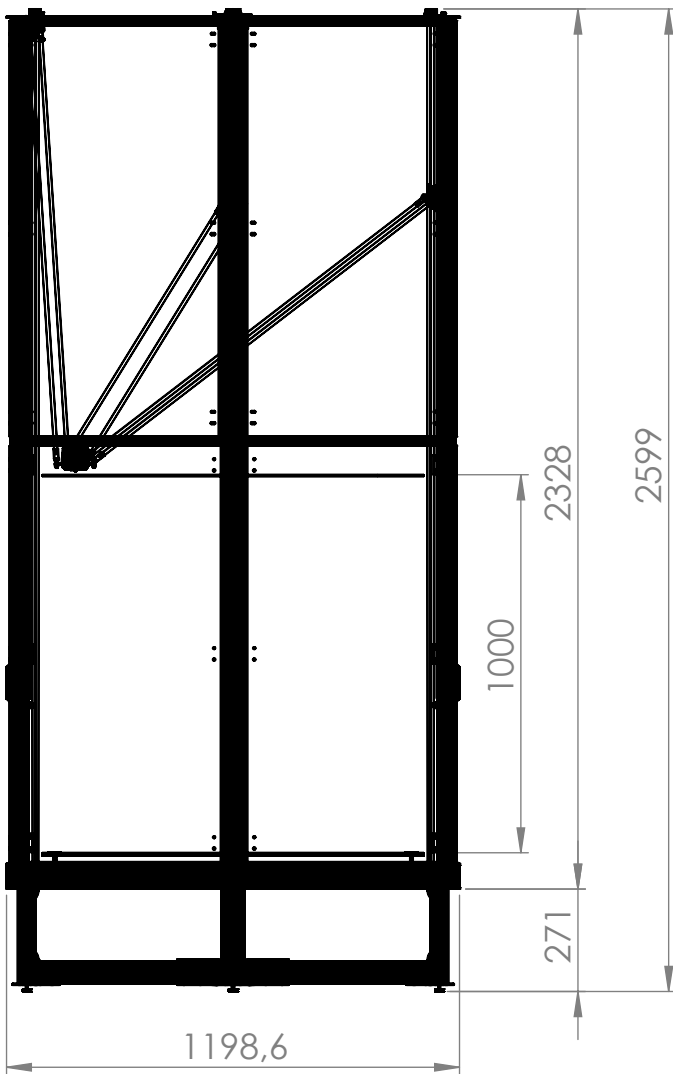


4070



DIMENSIONS

Printer dimensions illustrated below.



MAGNUM
100100

INTRODUCTION

Congratulations on the purchase of your new device. With it you have chosen a high quality product. During production, this equipment has been checked for quality and subjected to a final inspection. The functionality of your equipment is therefore guaranteed.

PRELIMINARY CHECKS

Before using, please check that the device is not damaged due to the transportation or due to the condition of preservation. To be checked if all standard components and the optional are present in the package. In case of damages, notify the claim to the carrier and inform the authorized dealer or manufacturer.

INSTALLATION

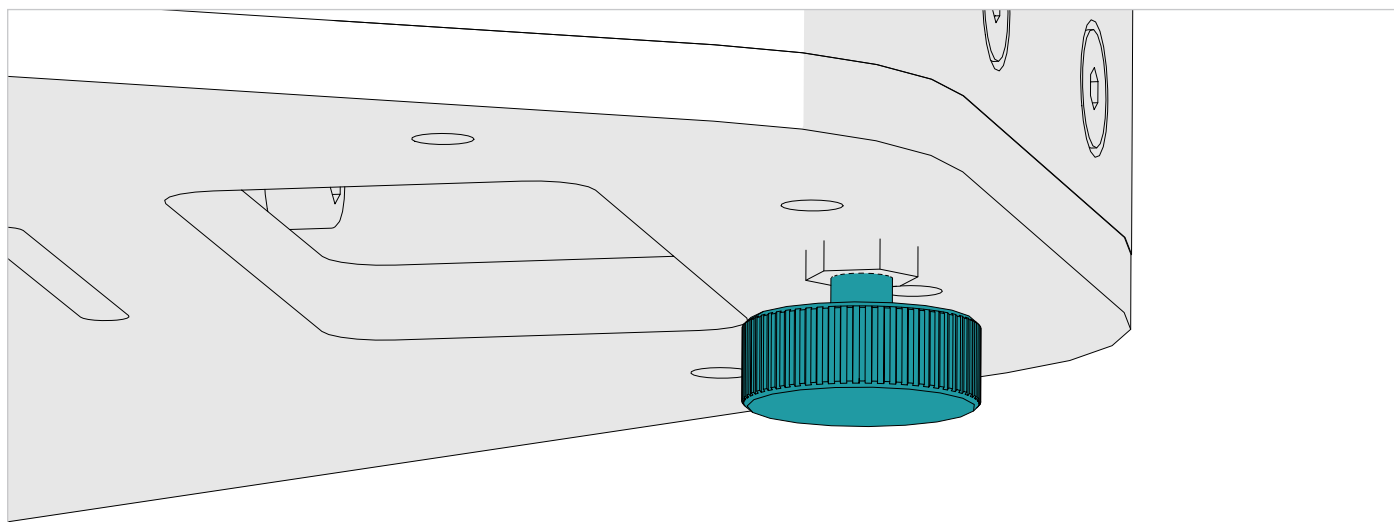
The device installation is easy, it is recommended to be done by skill people and to follow the instructions.



CAUTION: Do not install the device near to heaters, liquids or air conditioning device.

The device must be positioned on a stable and flat surface (not supplied), able to withstand the device weight and to absorb the vibrations.

- If the surface is not flat use the three regulation feet under each tower.



On the right side of the device is positioned the switch, this side should be easy accessible, on the bottom side of the device there are air inlets and the fan that provides to the correct cooling of the electronics and the motors. Keep the cooling air inlets clean from obstacles.

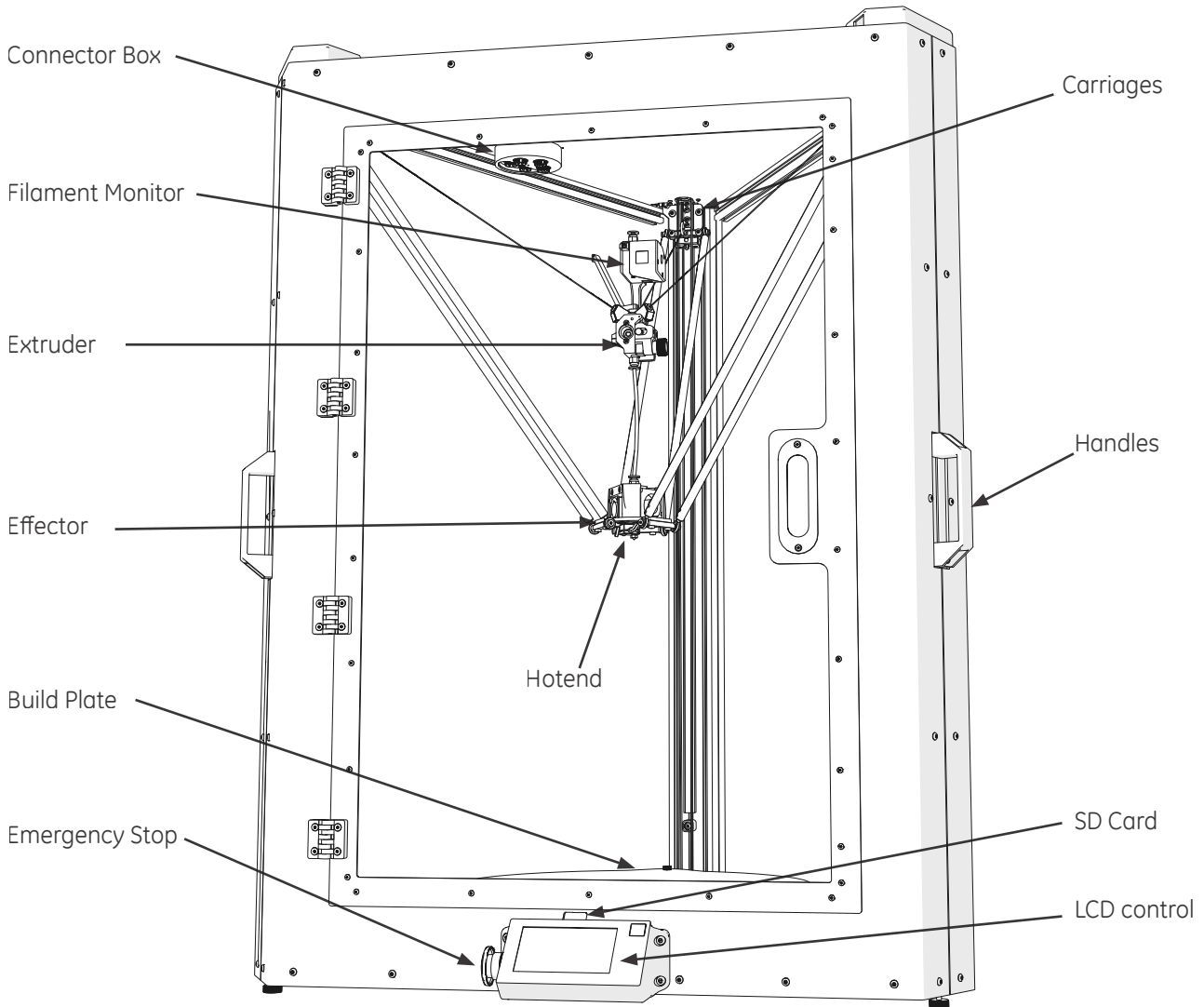
The filament should be positioned on the upper part of the device using its spool roller that is included in the supply. In case of shelves or wall too near to the device it could be alternative positioning of the filament reel, but it is mandatory that the filament is easy accessible and without having obstacles to the pulling of the filament by the extruder.

For an optimal work result it is suggested that the temperature in the environment to be about +20C°. Variation in ambient temperature could affect the final result of the prints.

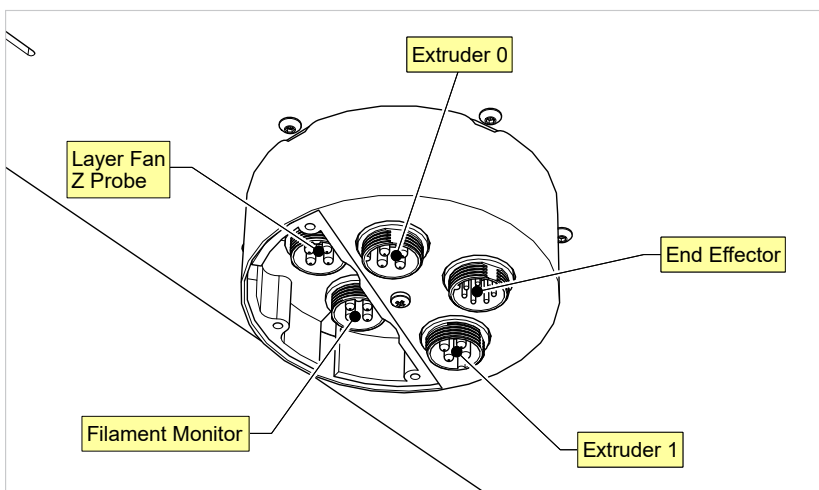
PRODUCT DESCRIPTION

3D printing or additive manufacturing is a process of making three-dimensional objects of a variety of shapes and sizes from a digital model. 3D printing is achieved using an additive process, where successive layers of material are heated and melted at the nozzle, extruded and laid down on the build platform (also known as Fused Filament Fabrication (FFF).) The printer is capable of using any material manufactured for FFF type 3D printing, provided the melt temperature and print bed temperature requirements are within the specifications of the ATLAS outlined in this manual.

The ATLAS Technik is capable of carrying out the additive manufacturing process under open source controls, via 3D model output in the .gcode format. It should be operated using the Web interface or independently with the LCD control unit and SD card.



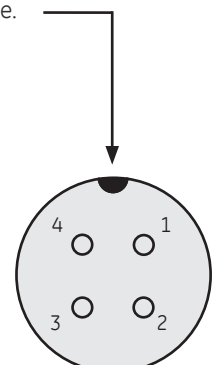
CONNECTOR BOX



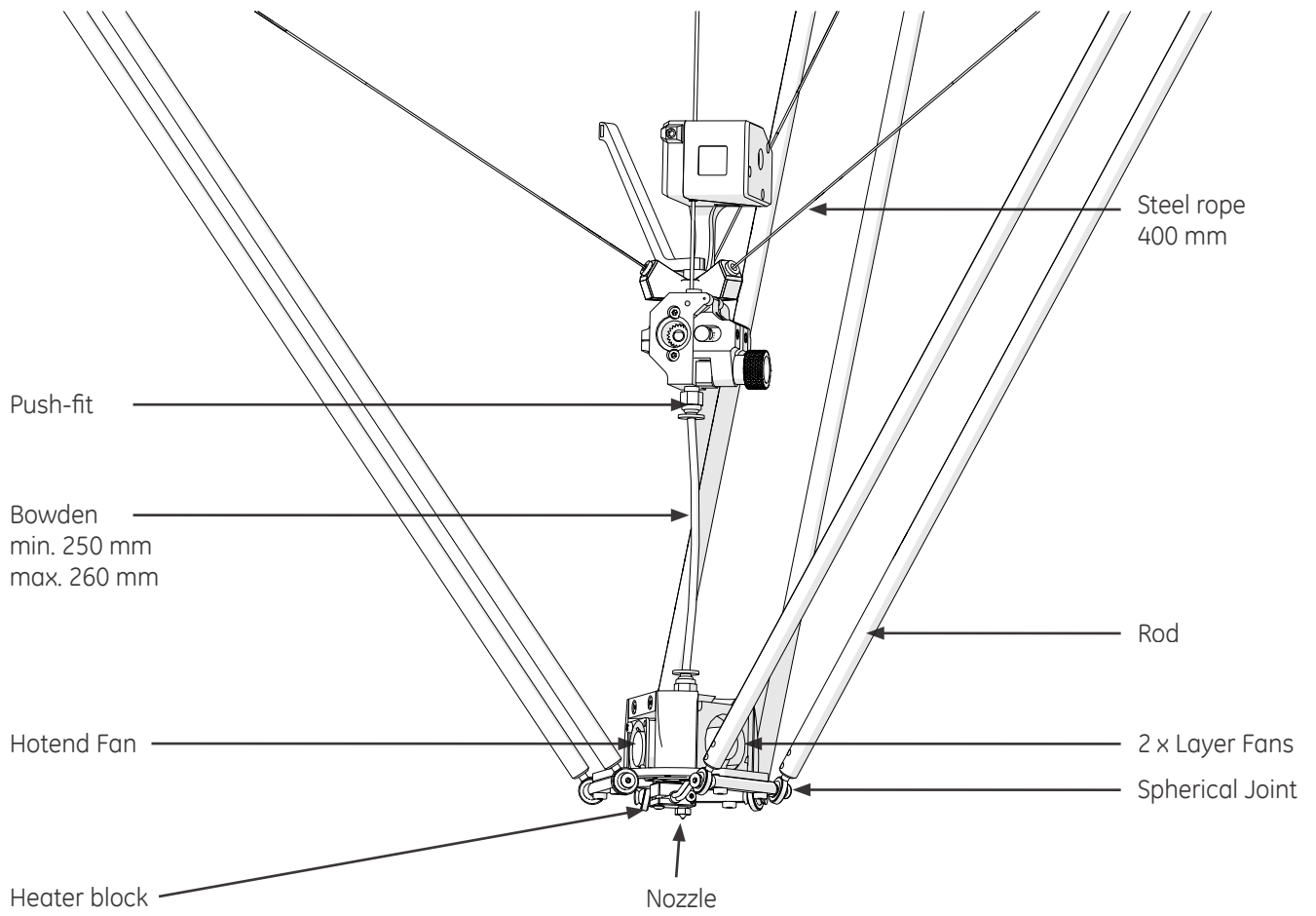
CAUTION: Turn OFF the machine before connecting or disconnecting any cable.

Look at the orientation notch to align the connector to the plug, never use too much force.

1. Effector: 8 pin
2. Extruder 0: 4 pin
3. Extruder 1: 4 pin
4. Layer Fan/Zprobe: 4 pin
5. Filament Monitor: 5 pin



PRODUCT DESCRIPTION



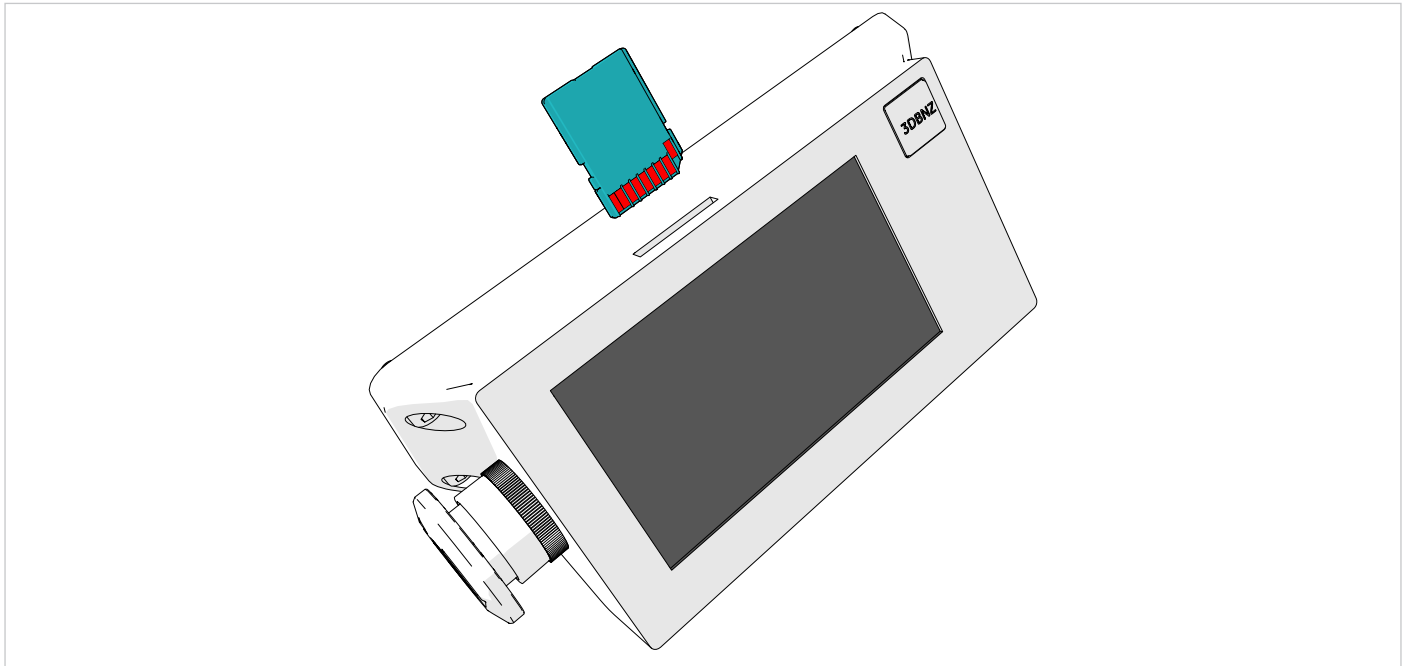
TOUCH CONTROL PANEL

The LCD control panel allow the user to manage the printer with a single touch. In the upper part of the display there is a slot for a full size SD Card.

The SD card reader use the SD 2.0 standard called SDHC and can read up to 32GB
SD Card must be formatted using FAT32.

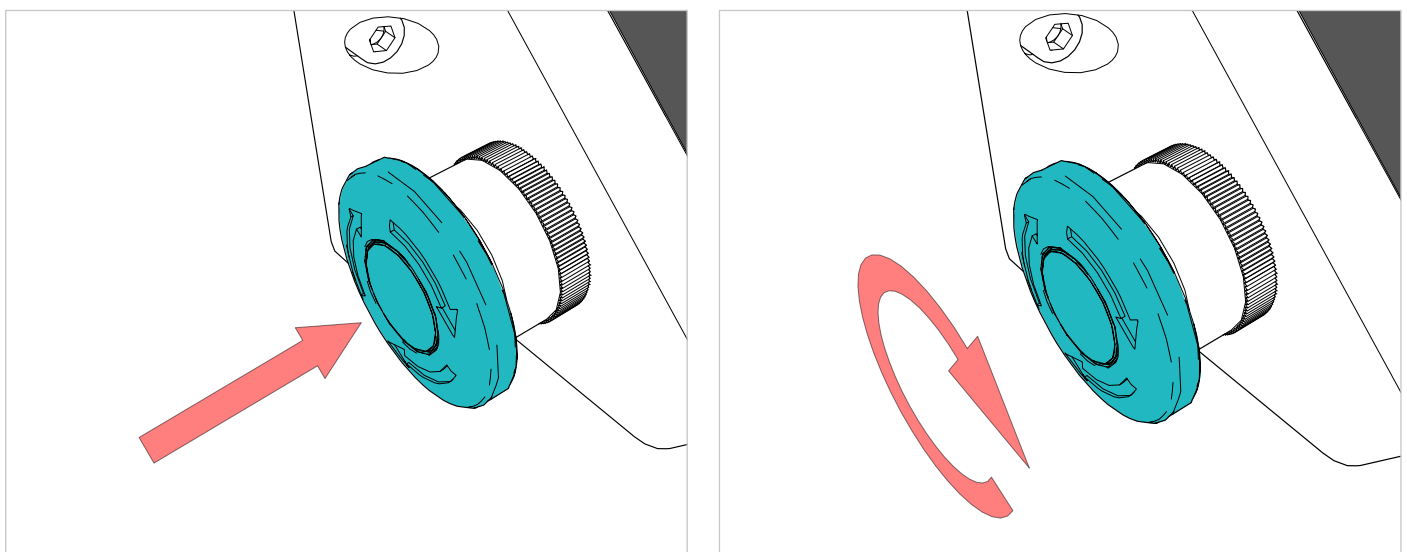


CAUTION: The SD Card must be inserted with the contacts oriented like the illustration below.

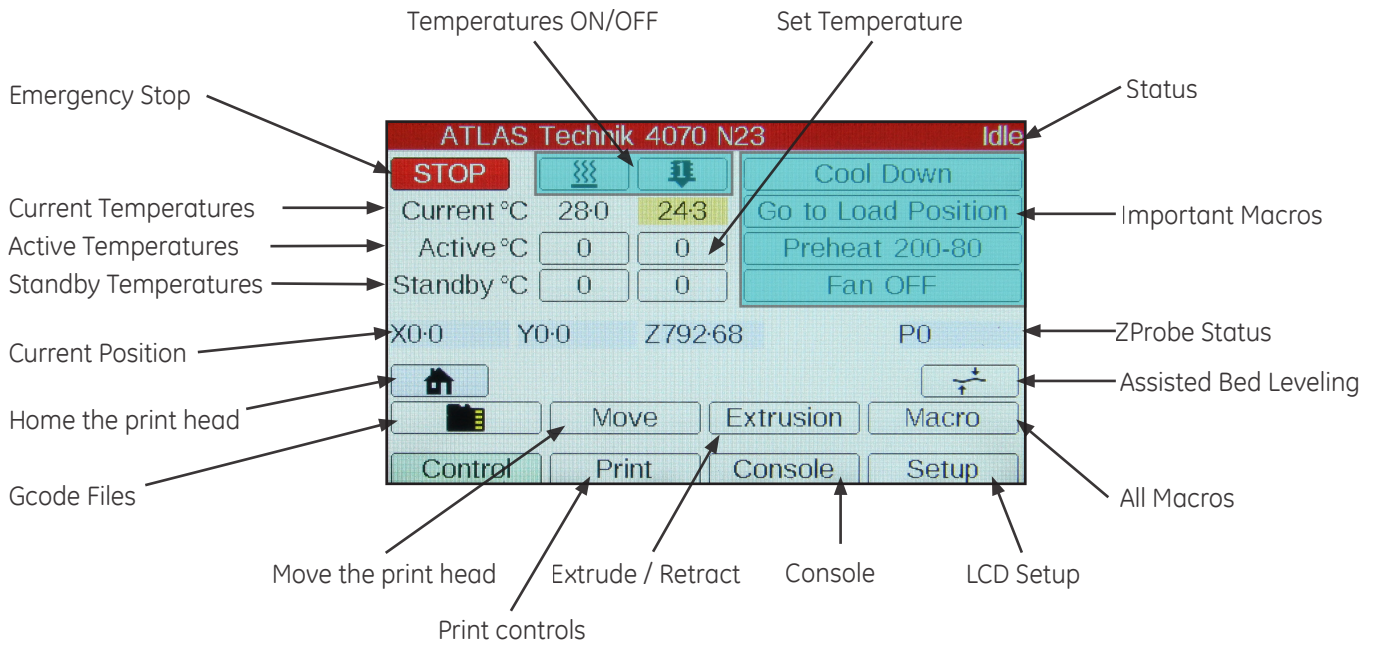
**EMERGENCY STOP**

In case of emergency the user can shut down the machine immediately by pressing the emergency button.
To release the emergency button, rotate it clockwise until it clicks back out.

After emergency stop has been pushed the electronics needs to be restarted for safety purpose. Press STOP on the LCD screen or turn off then on again the printer.

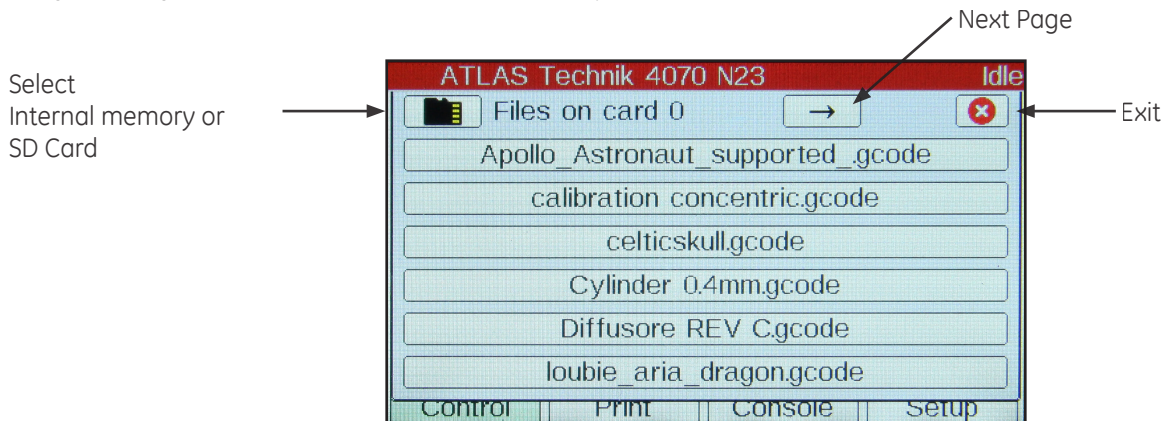


MAIN SCREEN



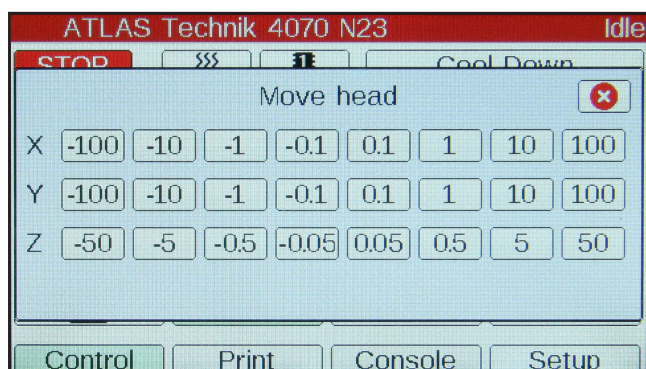
GCODE FILES

Navigate through Gcode files, card 0 is the internal memory, card 1 is the SD Card



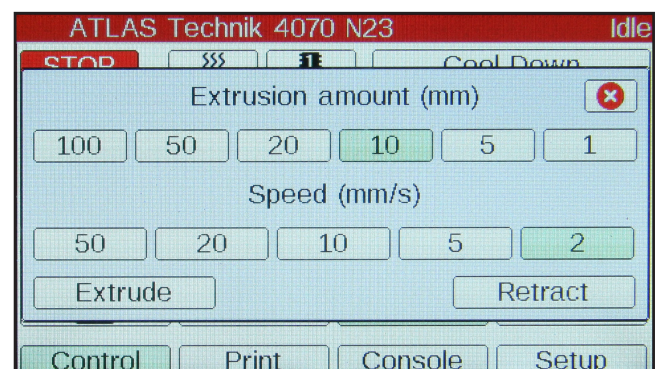
MOVE

Move the print head by selecting an axis and the desired increment.



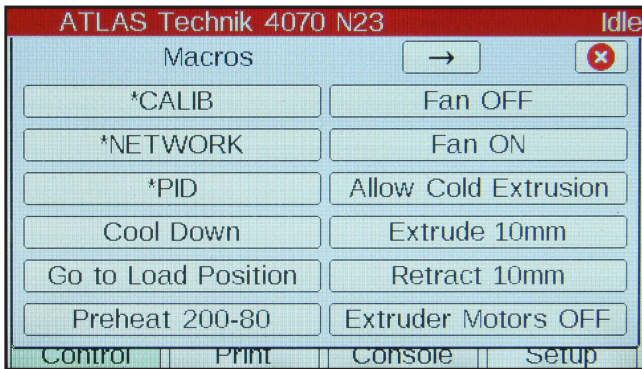
EXTRUSION

Extrude or retract filament by selecting an amount and the speed. Cold retraction are disabled by default, to force the machine to cold extrude select the Allow Cold Extrusion macro in the Macros page.



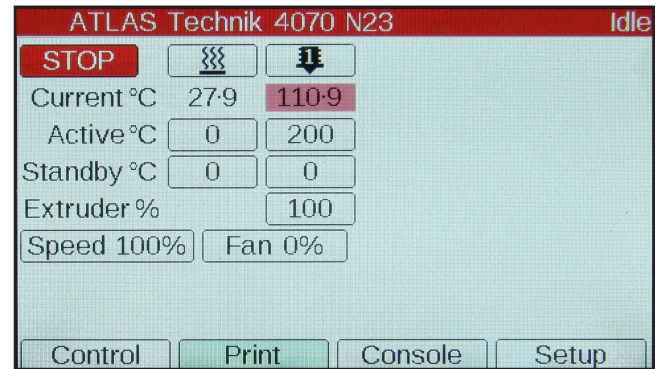
MACROS

The macros menu show all the macros and macros folders created using the Web Interface.



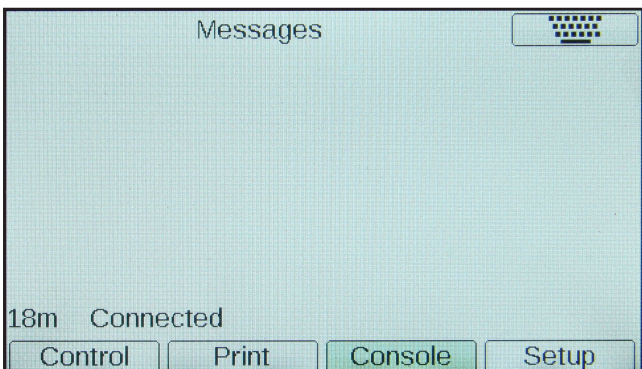
PRINT

The print menu show all the settings to make on the fly changes during a print.



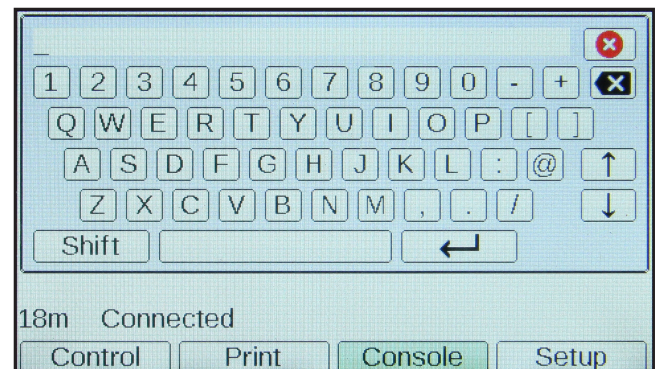
CONSOLE

The console allow the user to read system response to a given command.



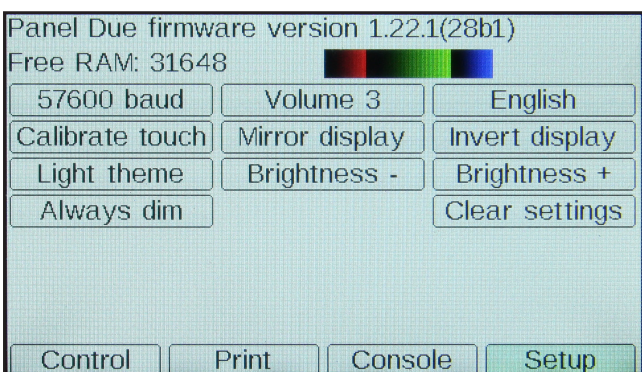
CONSOLE KEYBOARD

The Keyboard allow the user to send manual gcode commands, like G28 and many others.



SETUP

This setup is for the LCD contol panel only. Do not change the Baud Setting.



FILAMENT MONITOR - OPTIONAL

ATLAS 3D printers can be equipped with a filament sensing device that monitor how much filament is driven into the extruder. With this information the firmware can calculate if the extrusion is going as expected or if there is an under extrusion caused by an incorrect settings / mechanical problem then pause the printing process and wait for the user.

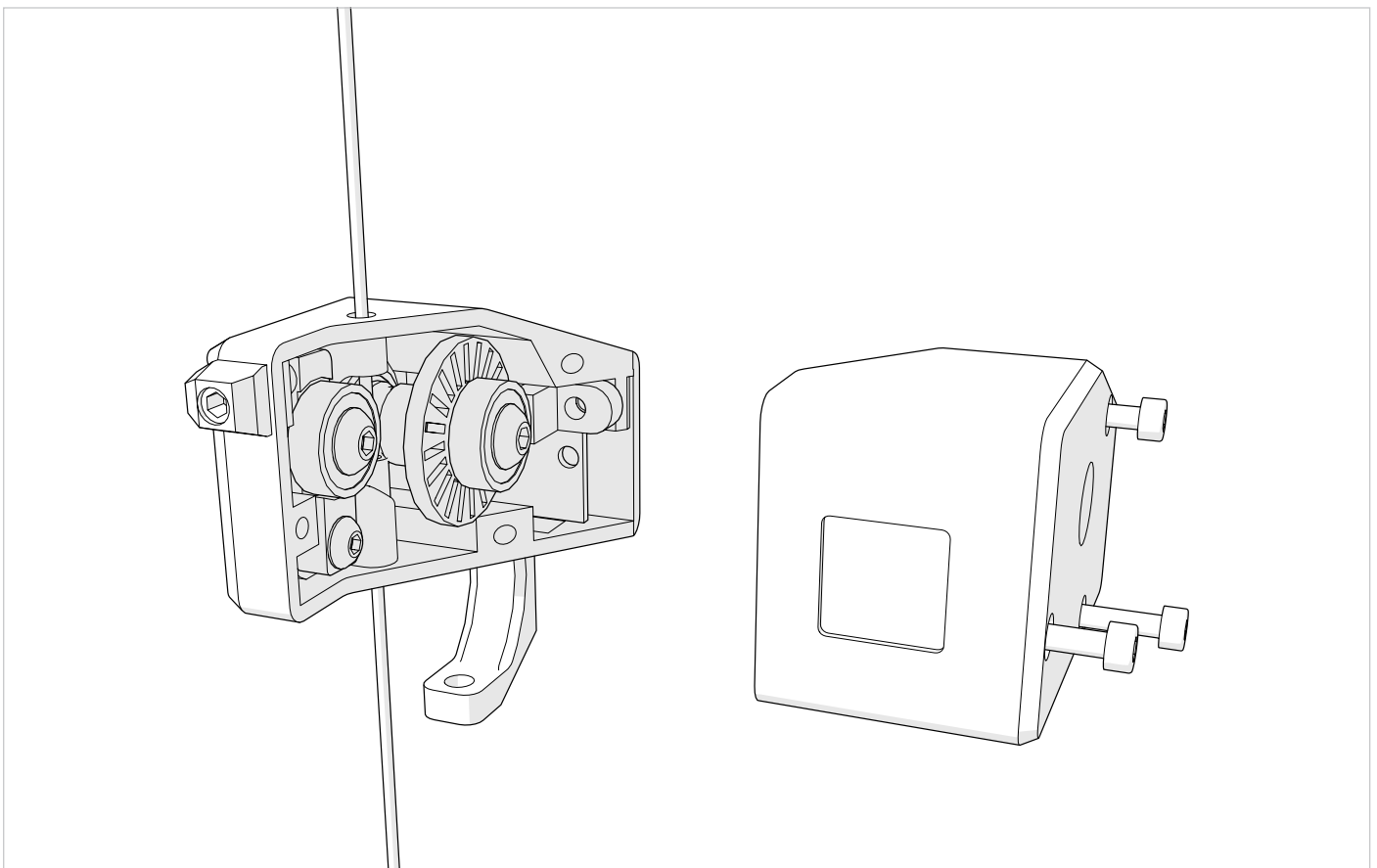
The filament drives a hobbed gear constrained to an optical encoder that generate pulses, on the rear of the device there is a LED, it turns on and off as pulse signal are sent to the main controller board.



IMPORTANT: This device is in an experimental stage and still in development.

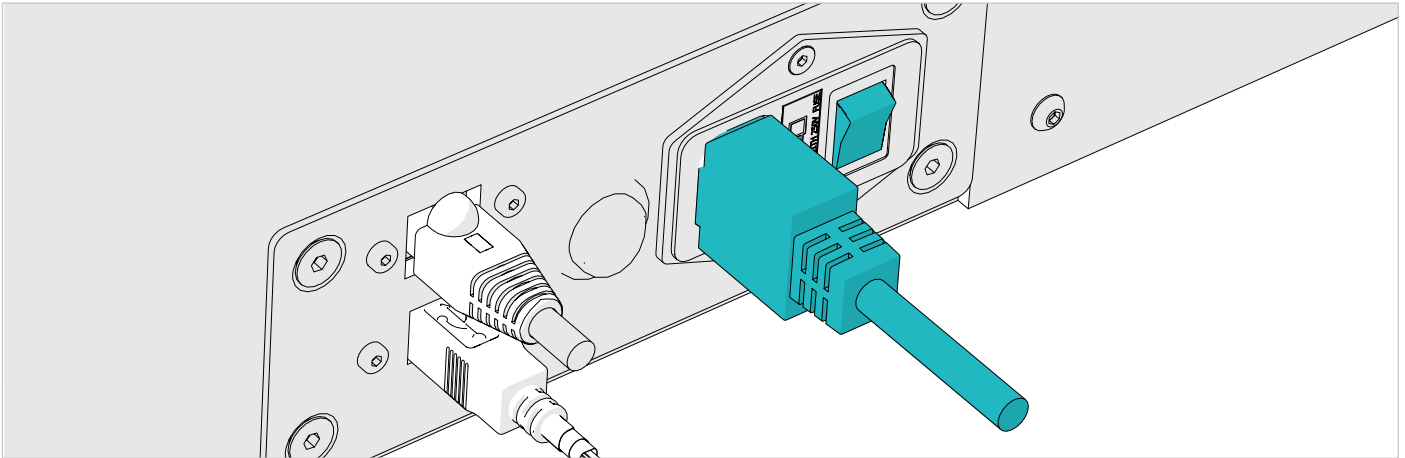
The filament monitor can be turned OFF or ON at any time:

- To DISABLE from sensing send command: **M591 D0 S0** or use the pre-configured Macro
- To ENABLE sensing send command: **M591 D0 S1** or use the pre-configured Macro

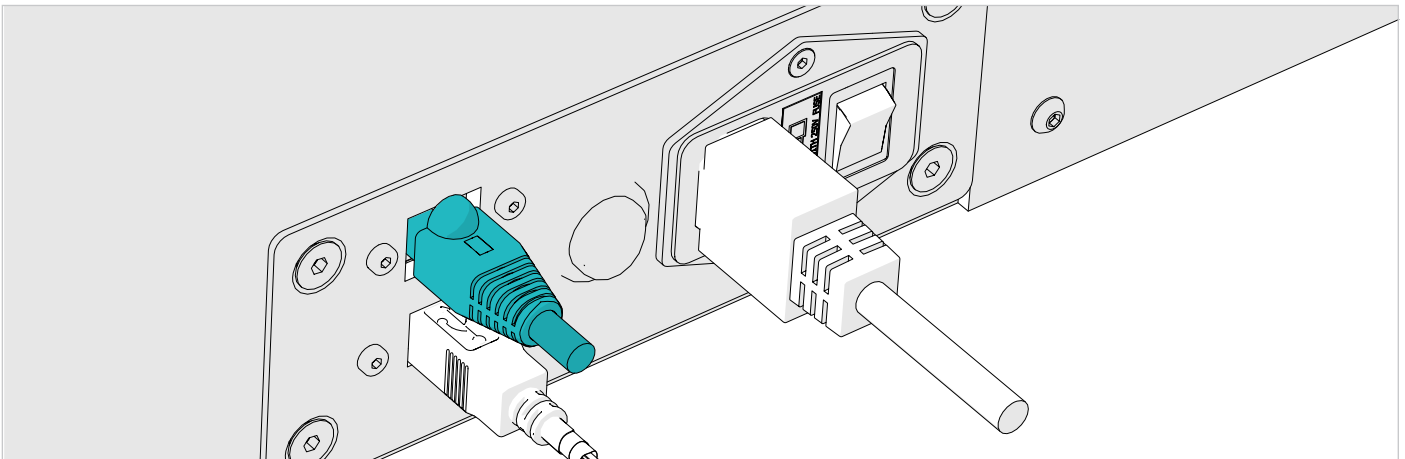


POWERING ON

1. Plug the power cord into the socket of the machine and the other side in to the power outlet.
2. Turn the switch on the ON position

**WIRED CONNECTION - ETHERNET VERSION**

1. Plug in the LAN cable into the RJ45 socket of the machine.
2. If the cable is plugged in when the machine is on then the IP adress of the ATLAS will be displayed for few seconds on the touch screen.
3. The IP adress is also displayed in the Console page on the touch screen menu
4. To obtain the IP adress run the macro: GET NETWORK SATUS in the NETWORK sub folder.

**WIRELESS CONNECTION - WIFI VERSION**

1. described at chapter: USB connection

ENDSTOPS SENSORS VERIFICATION

The ATLAS printer has three position sensors—one for the X tower, one for the Y tower, and one for the Z tower. We will name them alpha, beta and gamma.

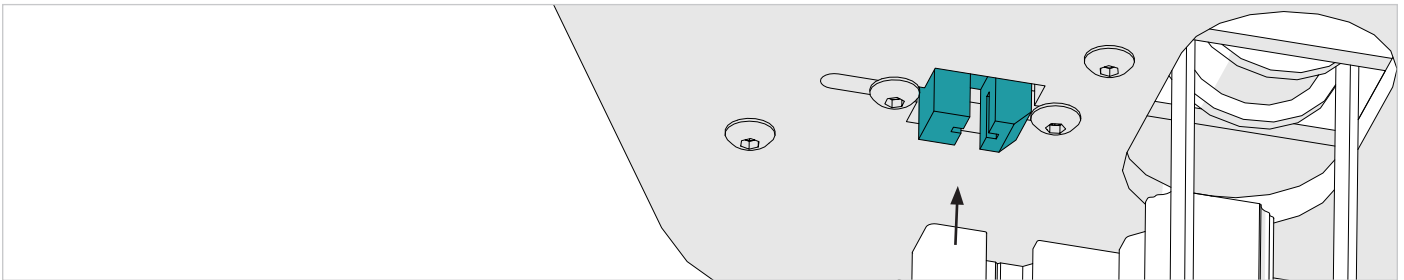
These sensors allows the printer to know its home position and prevent the effector from traveling beyond the designated print volume, which can cause serious damage or breakage to the extruder, build plate, and/or the mechanical hardware on the printer.

IMPORTANT: Each ATLAS Technik is tested prior to shipping, but it is important to verify the functionality of the sensors in case of damage or movement during the shipping process.

1. Hold a piece of opaque material into each sensor. The red light should turn off when triggered.
2. Using the LCD controls check if the electronic board is receiving the signal when triggering each endstop sensor

LCD > CONSOLE > TYPE: M119 > PRESS: ENTER

Contact 3DBNZ if sensors are nonoperational. Do not attempt to operate the printer.



TESTING THE AXIS

1. Check that nothing blocks the axis mechanisms (belts, pulleys, etc)
2. Ask the printer to go to its know position "home"

LCD > Touch the HOME icon



CAUTION: While the effector is in the home position you CAN'T move in XY plane as the carriages dont have enough space to accomplish that, take care when Jogging the position of the end effector manually. You should never move by hand the effector or carriages too fast, move them slowly instead.

LEVELING THE PRINT BED

To maximize adhesion It is reccomended to fine adjust the bed height regulation on the fly when printing first layer.

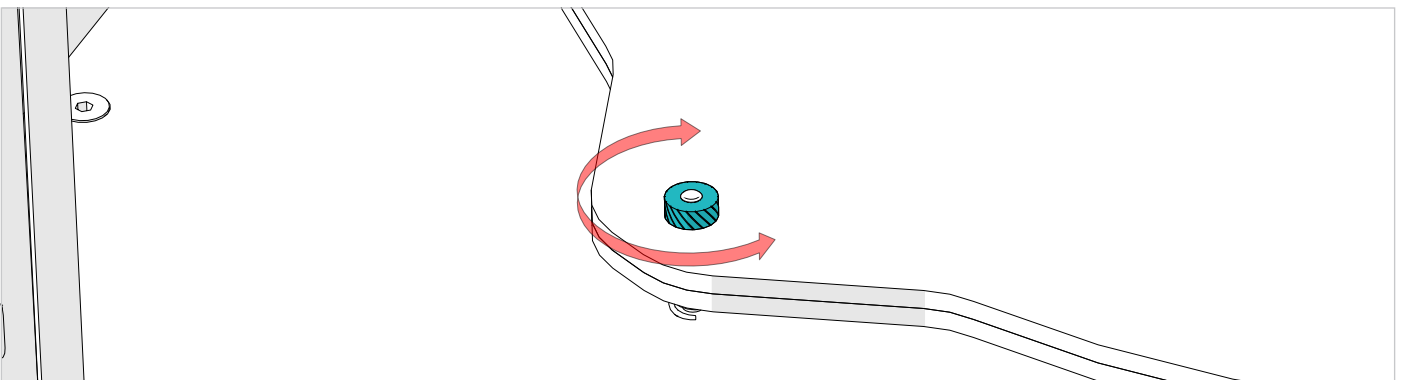
Take into account temperature varations, for best result calibration should be run with a hot machine as elements change dimensions with temperature variation.



IMPORTANT: improper height will result in a fail print or damaged cermaic build plate and/or nozzle.

Setting the build plate to low and the filament will not stick to the build plate, setting it too high the nozzle will be blocked and the filament will jam.

To change the height of the build plate use the three knobs. Turn clockwise to lower the build plate and counterclockwise to raise it.



LOAD FILAMENT AND EXTRUDER TEST

Position the filament spool roller on top of the printer. Guide the filament through the PTFE tube on the top of the printer then into the filament monitor and finally in to the extruder.

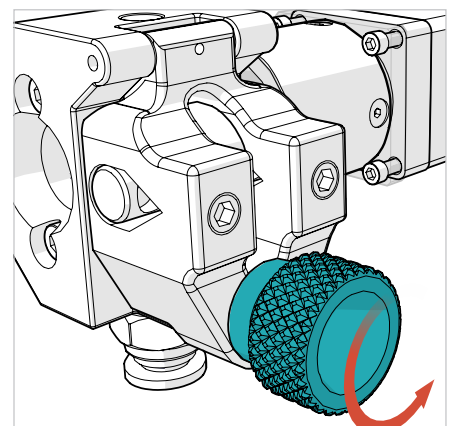
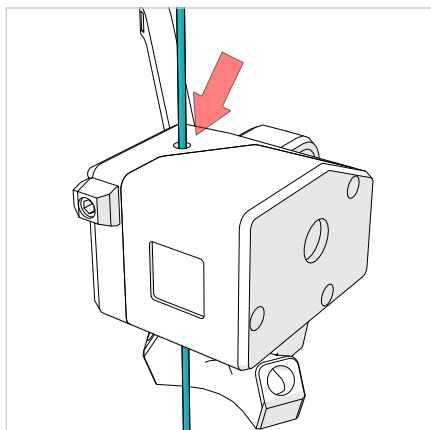
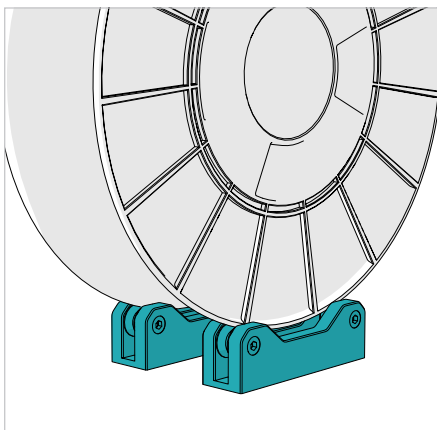
1. Lower the End effector to make the loading operations easier.

LCD > MACRO > Go to Load Position

2. Pre heat the 3D printer and set the nozzle temperature 10°C above the recommended material temperature.

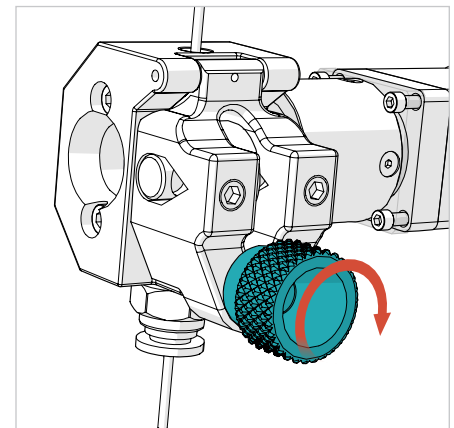
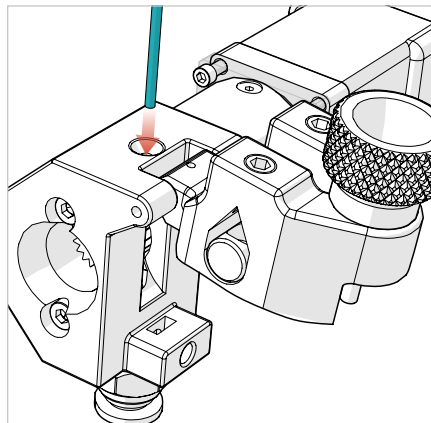
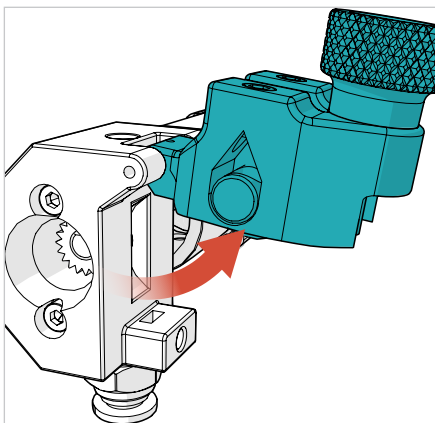
LCD > MACRO > Preheat 200 - 80

3. While waiting temperature to stabilize load the filament.
4. Insert the filament into the Filament Monitor device.



5. Push the filament by hand into the extruder until you see material flowing from the nozzle.

The filament must flow consistently without applying too much force. Adjust temperature so the force needed to push the filament is not too high.



6. Turn the knob until the extruder block is fully closed. **IMPORTANT:** Do not overtighten the knob

Depending on filament elasticity you can adjust the tensioner force by turning the two hex screws. Tighten for hard materials and loosen for softer ones.



CAUTION: Do not RETRACT more than 3mm of filament or the hot end will be jammed as the molten filament will be pulled back into the cold zone.

UNLOAD FILAMENT

1. Preheat the hotend to 180°C (minimum)
2. Open the extruder tension block to disengage the extruder hobbed wheel
3. Pull the filament out (use a fast moovment to reduce stringing)

Store filament in a cool place. Keep temperatures below (50° C). Keep material in sealed container or bag with moisture-absorbing desiccant.

CHANGE FILAMENT

Filament can be replaced at any time (when the printer is idle or mid-print).

- The hotend must be heated to 180° C (minimum) to remove or add filament.
- When printer is idle (not printing): Open the extruder tension block to release the hob and pull out existing filament, then follow the Loading Filament instructions.
- When the printer is mid-print: press PAUSE on the LCD Control Unit, this manually puts the printer into standby. Then follow the Unloading / Loading Filament instructions.
- To resume the print press RESUME on the LCD Control Unit.

PREPARE THE PRINT BED

Prepare the build area for printing. In order for your prints to adhere to the build plate (it needs to be clear of debris and sticky) put a good amount of Dimafix fixative glue onto the build area.

Cover the entire area that your print will touch. Repeat this process between prints to remove filament particles and other debris, as well as prepare the bed for the next print.

This is not the only method available. Other suggestions include: painter's tape, glue stick, and hairspray.

NOTE: 3DBNZ recommends using Dimafix only. Any scented hairspray may contain oils and cause adherence issues on the print bed.

To clean the build plate use isopropyl alcohol IPA or glass cleaner.



IMPORTANT: Dimafix in pen format is preferred over the spray type in order to avoid contaminations of sticky material on the delta motion system.

**HEAT THE PRINT BED**

The print bed on the ATLAS printer is heated to provide better adhesion of your printed parts. Each material will require a different temperature setting.

- For easy removal of large or small parts wait until the build plate cools down to room temperature, open the door for faster cooldown. You will hear the plastic loosening and the part will pop off the print bed.

See the Recommended Temperature table



CAUTION: For the safety of the user, use extreme caution when working with heated machinery.

USB CONNECTION

The USB connection procedure is only needed for the ATLAS WiFi, for ethernet version you should be able to connect to the printer by plugging in the ethernet cable and typing the IP adress in the browser adress bar.

Due to non standard network enviroment or if the network module fails you may need to connect and operate the printer with a host software of your choice.

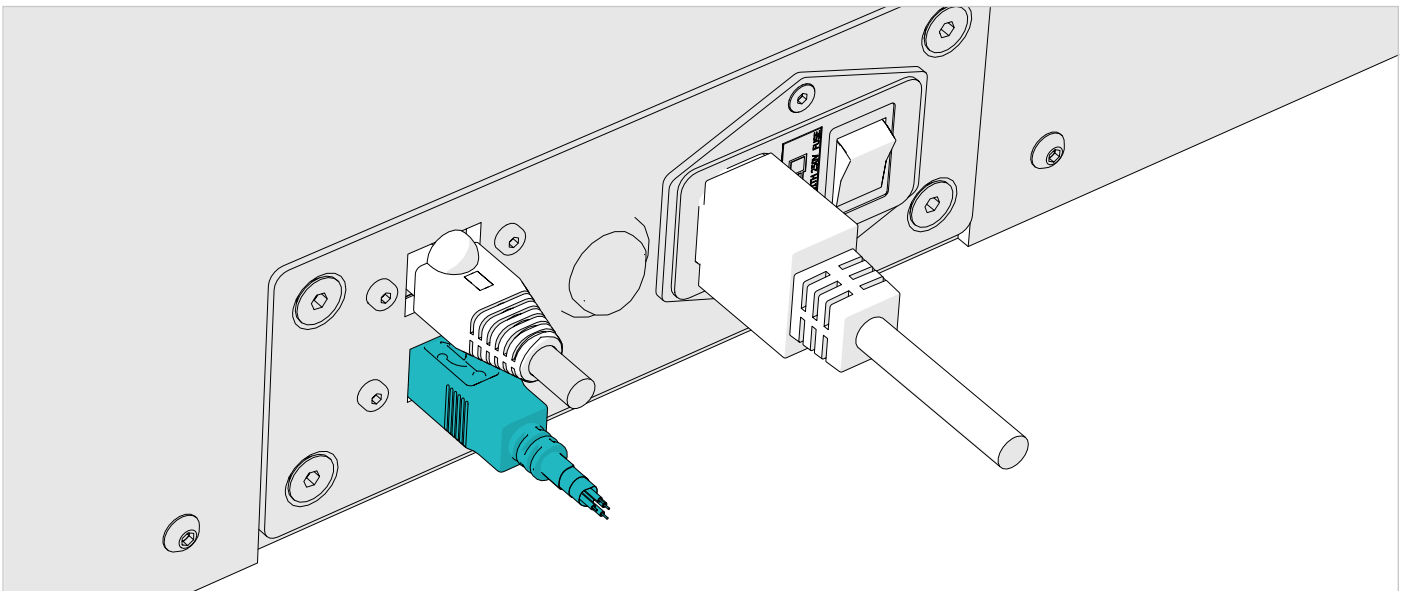
CONNECTING THE PRINTER TO PC VIA USB

WINDOWS

- Download the USB drivers for the controller and extract the files to a suitable location.
<https://github.com/dc42/RepRapFirmware/blob/dev/Driver/DuetDriverFiles.zip>
- Connect the printer to your PC with a USB cable.
- To install drivers, open Device Manager by pressing **Windows Key + R** and type **devmgmt.msc**, or launch from the Start menu by typing "Device Manager".
- Look for any devices with a yellow triangle which would indicate that the driver is not installed. If no devices have this indicator, then the driver was successfully installed.
- If a USB device does show the yellow triangle, right click on the device. Click Install Driver and browse to the location of the driver that was downloaded at the beginning of this step. Continue setup by clicking "Next" until the device driver has been installed.

MAC OSX

- Mac OSX users can just connect the Printer to their Mac with a USB cable and proceed to the next step.



SETUP TERMINAL EMULATOR

To set up a WiFi connection we must use a terminal emulation program. This is because 3D printer host programs send all characters in uppercase, and your WiFi settings (SSID and password) are case sensitive.

WINDOWS

- Download YAT here. Install YAT using default options.
<https://sourceforge.net/projects/y-a-terminal/>

MAC OSX

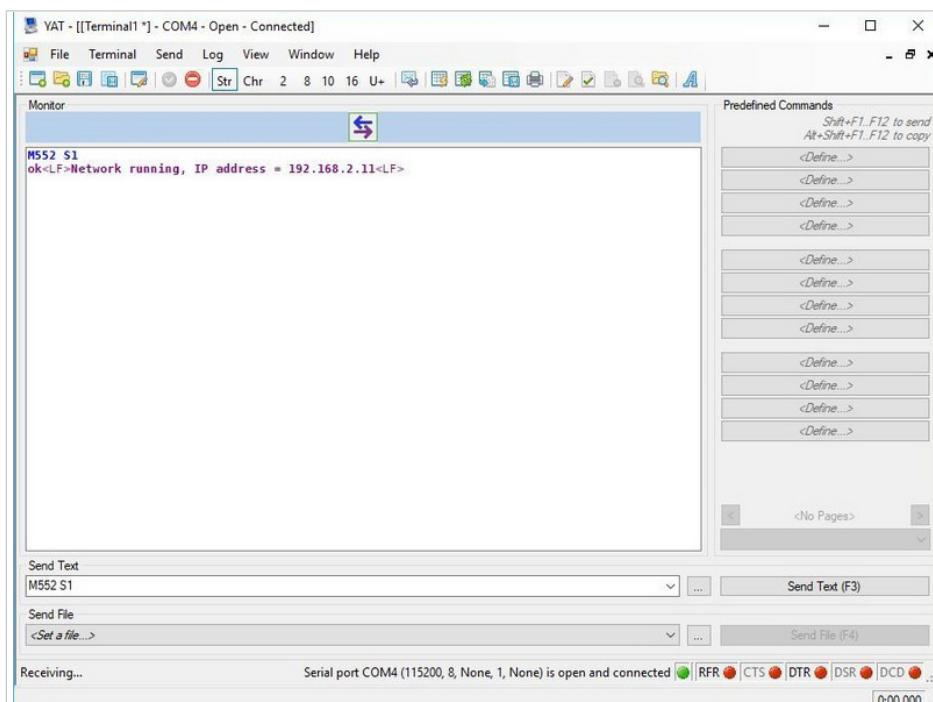
- Mac OSX Users: Open Applications > Utilities > Terminal .
- Run `ls /dev/tty.*`
- Copy the result that has USB in the name.
For example; /dev/tty.usbmodem1411
- Run `screen /dev/tty.usbmodem1411 115200`.
Replace "usbmodem1411" with the result you received.
You should see a blank screen.
Hit enter and you should see OK returned.
You are connected successfully.
- If you get an error, **Sorry, could not find a PTY**. unplug the USB, plug it back in and try again.

TERMINAL:

```

Last login: Wed Feb 28 10:59:47 on ttys000
$ ls /dev/tty.*
/dev/tty.Bluetooth-Incoming-Port      /dev/tty.usbmodem1411
$ screen /dev/tty.usbmodem1411 9600
  
```

YAT:



CONNECT YAT TO PRINTER

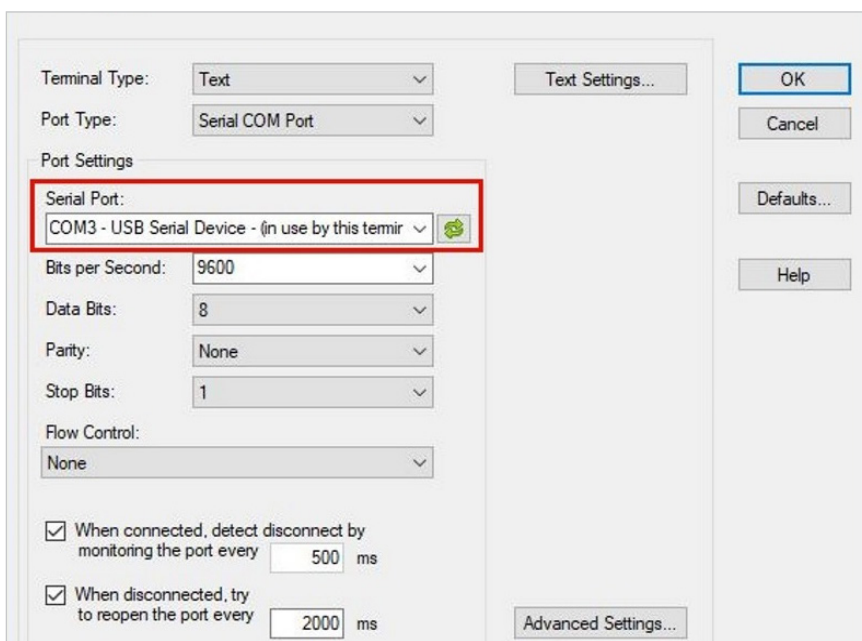
WINDOWS

- Windows Users: Open YAT, and configure the correct COM port.
- If unsure of the COM port number, press **Windows Key + R** on your keyboard and type **devmgmt.msc**
- The printer controller will be listed under *Ports (COM & LPT)* as *USB Serial Device (COM#)* or similar. Use COM# as the com port in YAT.
- Also in YAT, under Text Settings set the end-of-line sequence to <LF>.

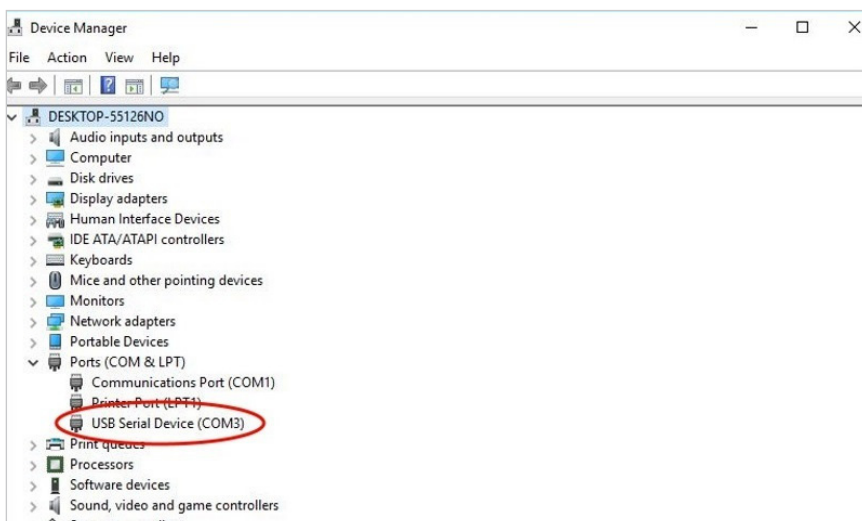
MAC OSX

- Mac users can skip this step.

YAT

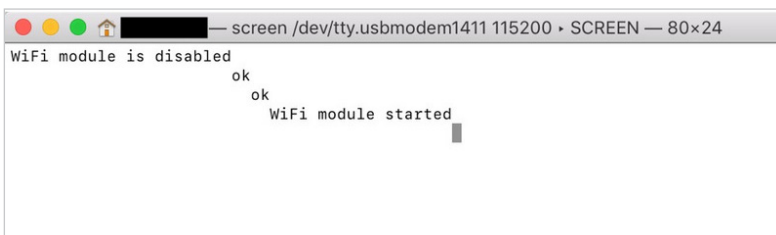
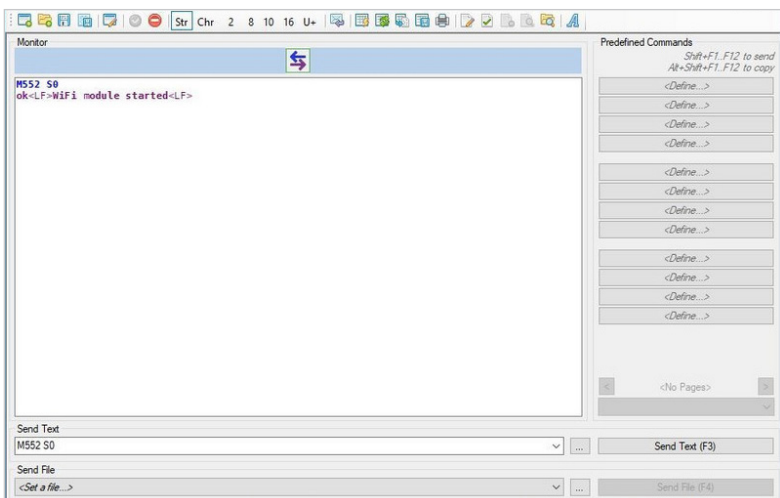
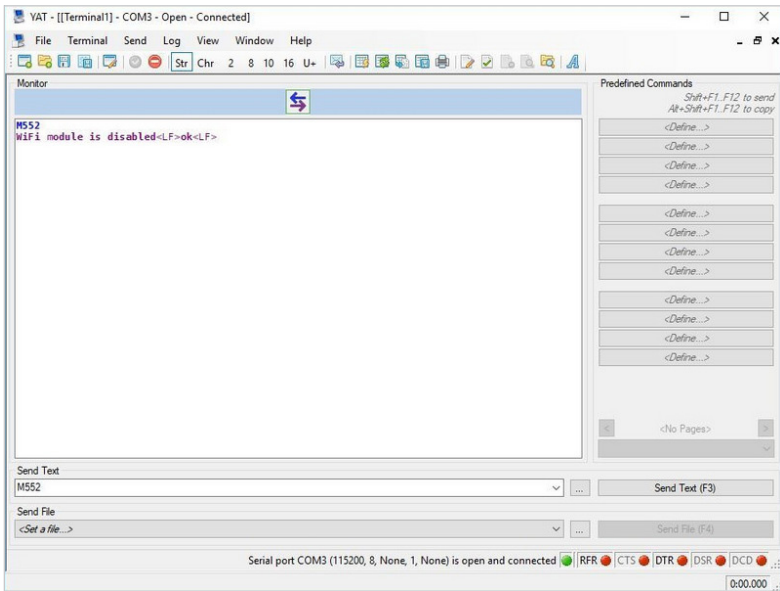


DEVICE MANAGER



ENABLE NETWORK MODULE

- First, check the status of the network module by sending command "M552".
- If the printer returns network module is disabled, put it into IDLE mode it by sending command "M552 S0".
- If it returns network module is idle, proceed to the next step.



CONENCT TO NETWORK



NOTE: The WiFi module only support 2.4Ghz not 5 Ghz Wifi bands.

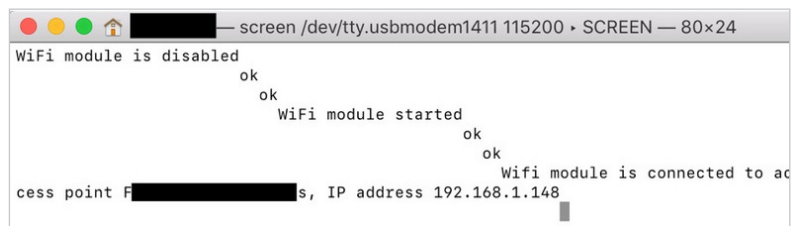
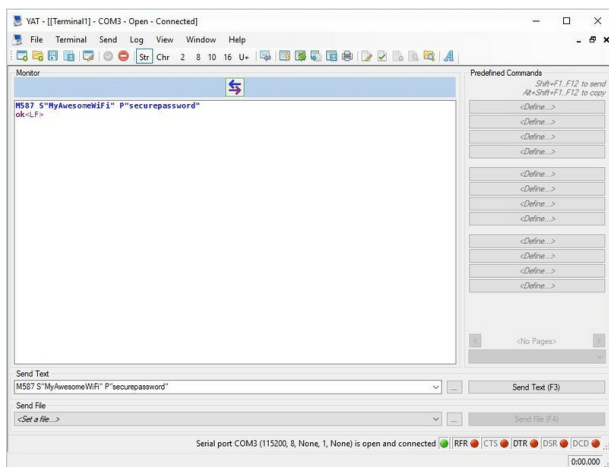
1. Send command **M587 S"your-network-ssid" P"your-network-password"**.
The quotation marks are needed, but substitute the SSID and WiFi password for your own network.

IMPORTANT: Enter the exact characters in the SSID and password of your network, in the correct case, except that if your SSID contains an apostrophe then enter two apostrophe characters in its place.

EXAMPLE: If your SSID is Pete's network then enter "Pete's network".

2. Send command **"M552 S1"** to connect to WiFi.
3. After a moment, printer will confirm the connection and the IP address of the printer controller.

At this point the ATLAS should be on the WiFi network. To connect to it, continue with the next step.



IN DETAIL

M587: Add WiFi host network to remembered list, or list remembered networks

Parameters:

- S"ccc" Network SSID
- P"ccc" Network password
- Inn.nn.nn.nn (optional) IP address to use when connected to this network. If zero or not specified then an IP address will be acquired via DHCP.

If a password or SSID includes space or semicolon characters then it must be enclosed in double quotation marks.

Many programs used to send GCodes convert all characters to uppercase, you can use a single-quote character to indicate that the following character should be changed to lower case. For example, M587 S"ABC" P"P'A'S'W'O'R'D" would specify that the password is PassWord. Use two single quote characters to represent one actual single quote character in the password.

M587 with no parameters lists all the remembered SSIDs, but not the remembered passwords.

Note: on the Duet WiFi, the M587 command will fail if the WiFi module has not yet been taken out of reset. If the WiFi module has not been started yet, send M552 S0 to put it in idle mode before sending M587.

M588: Forget WiFi host network

Parameters:

- S"ccc" Network SSID to remove from the remembered list
- The specified SSID will be removed from the remembered list and the associated password cleared out of EEPROM. If the SSID is given as "*" then all remembered networks will be forgotten.

CHECK ACCESS TO DWC: DUET WEB INTERFACE

- Open your browser and type the IP address assigned to the printer controller.
- You should now see the main control page for ATLAS Technik WiFi or ATLAS Technik Ethernet!

The screenshot displays the DuetTest web interface. The browser's address bar is highlighted with a red circle, showing the IP address 192.168.1.90. The interface is divided into several sections:

- Top Bar:** Includes a 'Disconnect' button, a 'Send G-Code...' input field, 'Send' and 'Upload & Print' buttons, the 'DuetTest' title with a warning icon, and an 'Emergency STOP' button.
- Tools / Heaters / Extra:** A table listing heaters:

Tool	Heater	Current	Active	Standby
Tool 0 T0	Heater 1 fault	2000.0 °C	0	0
Tool 1 T1	Heater 2 off	2000.0 °C	0	0
Bed	Heater 0 off	2000.0 °C	0	
- Temperature Chart:** A line graph showing temperature over time, with a y-axis from 0 to 250.
- Machine Status:** A table showing current machine parameters:

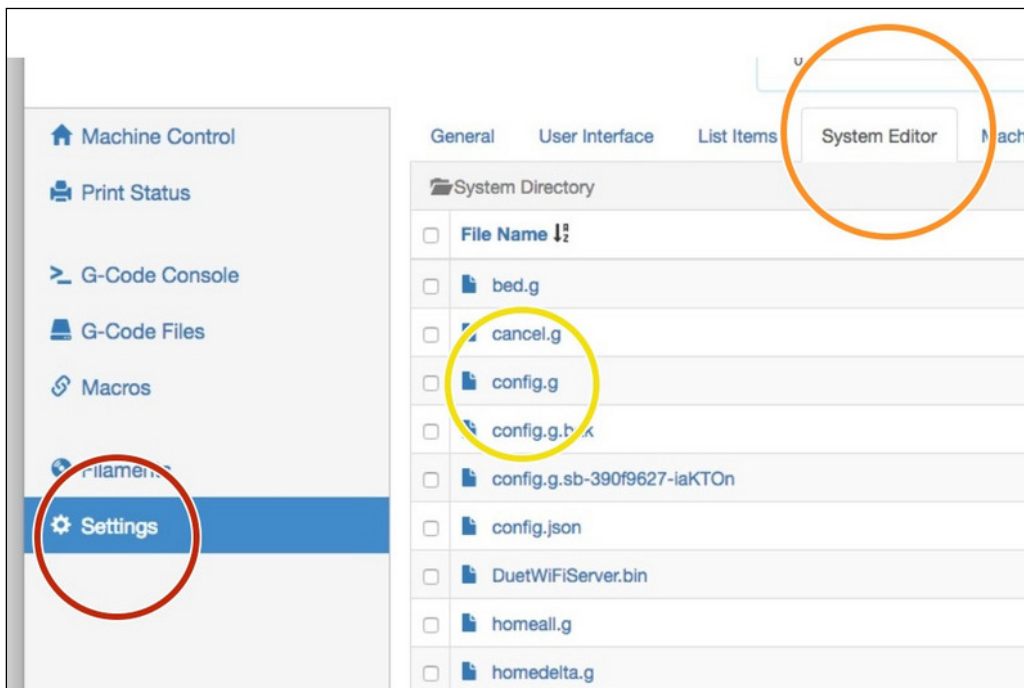
Head Position	X	Y	Z
	n/a	n/a	n/a
Extruder Drives	Drive 1	Drive 2	
	0.0	0.0	
Sensors	Vin	Z-Probe	
	1.7 V	208	
- Machine Control:** A sidebar on the left with links to 'Print Status', 'G-Code Console', 'G-Code Files', 'Macros', 'Filaments', and 'Settings'.
- Head Movement:** A section with buttons for moving the head in X, Y, and Z directions (e.g., X-100, X-10, X-1, X-0.1, X+0.1, X+1, X+10, X+100).
- Warning:** A yellow banner states 'The following axes are not homed: A, B, C'.
- Extruder Control:** Includes sliders for 'Feed amount in mm' (values: 100, 50, 20, 10, 5, 1) and 'Feedrate in mm/sec' (values: 60, 30, 15, 5, 1), along with 'Retract' and 'Extrude' buttons.
- User-Defined Macros:** A list of macros such as 'E motors off', 'Extrude 5mm', 'Load filament', 'Retract 5mm', 'SETNETWORK', 'TestPrint2', and 'Unload filament'.
- Miscellaneous:** A section with a 'Fan 1' speed slider currently set to 0%.
- Message Box:** A blue box at the bottom says 'Message from Duet firmware' and provides a link: 'Use <https://configurator.reprapfirmware.org/> to set up your printer config'.

ENSURE FUTURE CONNECTIVITY - WIFI VERSION

We need to be sure the networking is configured properly for the future.

- Navigate to config.g by clicking:
Settings > System Editor > config.g
- In the NETWORK section of the config.g check that there is a command **"M552 S1"** without a semicolon in the beginning. This sets the wifi or ethernet module to enabled.
- Click "Save Changes" and approve to reboot.

NOTE: Commands are processed from top to bottom, so a command at the bottom supersedes a command at the top of the file.



```

; Tools
M563 P0 D0 H1 ; Define tool 0
G10 P0 X0 Y0 Z0 ; Set tool 0 axis offsets
G10 P0 R0 S0 ; Set initial tool 0 active and standby temperatures

; Network
M550 Pduetttest ; Set machine name|
M552 S1 ; Enable network
; Access point is configured manually via M587 by the user
M586 P0 S1 ; Enable HTTP
M586 P1 S0 ; Disable FTP
M586 P2 S0 ; Disable Telnet

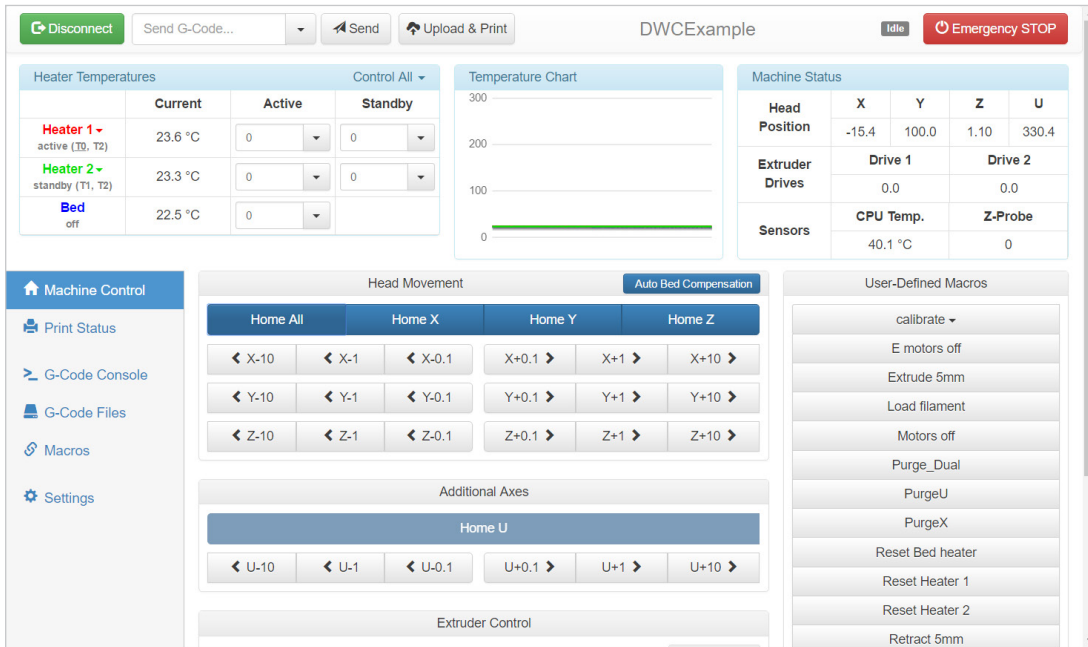
; Fans
M106 P0 S0.3 I0 F500 H-1 ; Set fan 0 value, PWM signal inversion a
M106 P1 S1 I0 F500 H1 T45 ; Set fan 1 value, PWM signal inversion
M106 P2 S1 I0 F500 H1 T45 ; Set fan 2 value, PWM signal inversion
    
```

Note: The WiFi module only support 2.4Ghz not 5 Ghz Wifi bands.

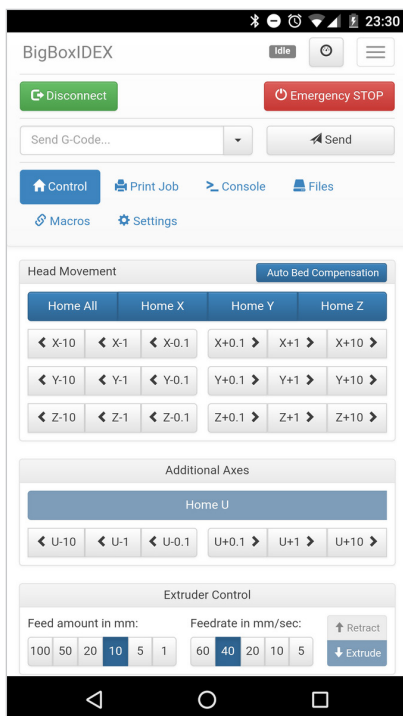
OVERVIEW

Duet Web Control is a full featured UI for the ATLAS Technik series 3D printers. It is adaptive and what is displayed changes depending on the configuration of the printer connected.

When opened in a browser Duet Web Control starts in the machine control screen, when viewed on a large screen will look similar to this:



NOTE: it will adapt to smaller screen sizes as required however all the features can still be accessed through drop down menus, as shown here on an Android Phone:



BROWSER COMPATIBILITY

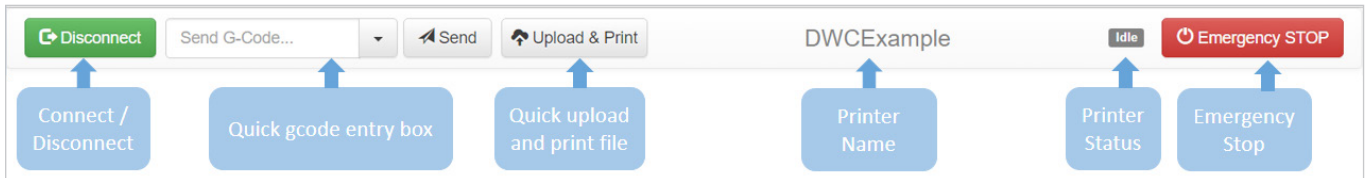
Note that Chrome and Firefox browsers fully support DuetWebControl however Edge, IE have problems.

DWC file editor works in Safari 10.0.1 and later. (Won't work in any earlier versions)

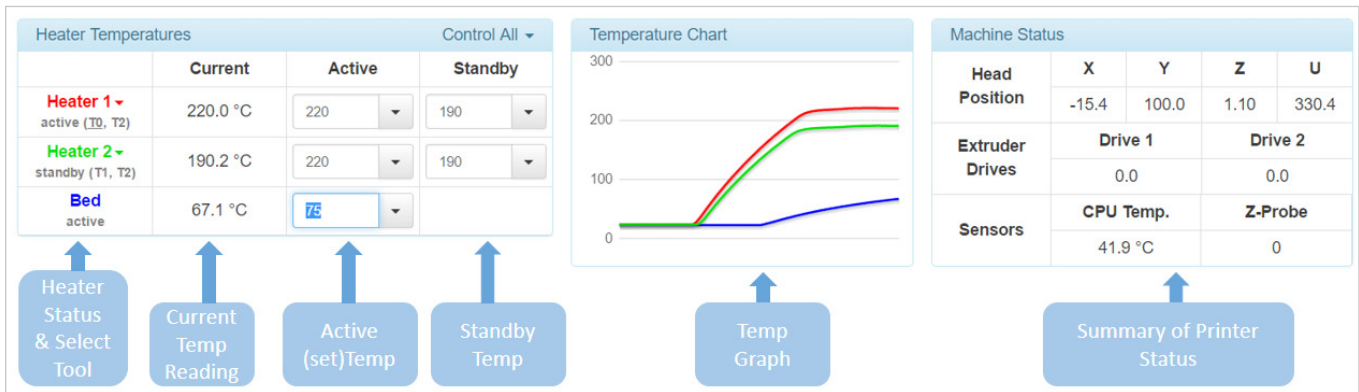
MACHINE CONTROL

The machine control page is composed of the following elements:

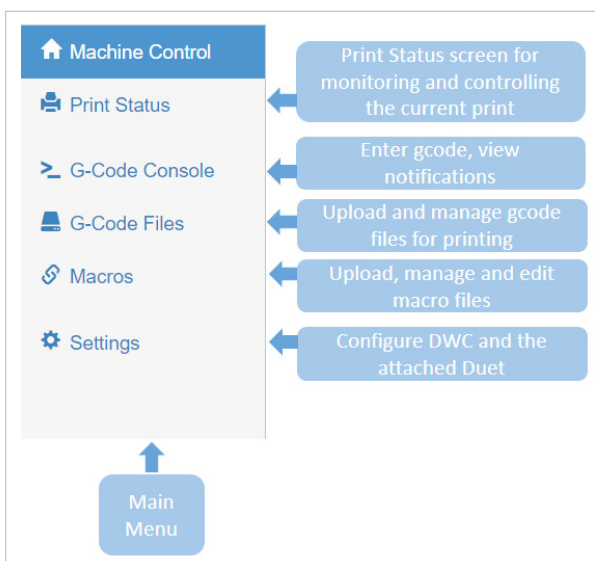
Header bar (common to all pages):



Printer status (common to all pages):



Main menu (common to all pages):



Axes and extruder control:

The screenshot displays the 'Head Movement' and 'Extruder Control' sections of the Duet Web Control interface. Callouts provide context for various controls:

- Auto Bed Compensation:** A button for bed leveling.
- Home All / Home X / Home Y / Home Z:** Buttons to home the printer. The 'Home X', 'Home Y', and 'Home Z' buttons are highlighted in orange, indicating they are not currently homed.
- Axis Movement:** Buttons for moving individual axes (X, Y, Z) in both directions with various offsets (e.g., X-10, X-1, X-0.1, X+0.1, X+1, X+10).
- Additional Axes:** A section for 'Home U' and movement buttons for the U-axis.
- Warning:** A yellow warning bar states 'The following axes are not homed: X, Y, Z, U'.
- Extruder Control:** Includes input fields for 'Feed amount in mm' (with 10 selected) and 'Feedrate in mm/sec' (with 40 selected), along with 'Retract' and 'Extrude' buttons.

Macros and miscellaneous:

The screenshot displays the 'User-Defined Macros' and 'Miscellaneous' sections of the Duet Web Control interface. Callouts provide context for these sections:

- Macro selection:** A callout pointing to the 'User-Defined Macros' list, which includes: calibrate, E motors off, Extrude 5mm, Load filament, Motors off, Purge_Dual, Retract 5mm, and Unload filament.
- Optional control for ATX Power and print cooling fan:** A callout pointing to the 'Miscellaneous' section, which includes:
 - ATX Power:** A toggle switch currently set to 'On' (green).
 - Fan Control:** A slider control currently set to 0%.

SELECTING TOOLS / SETTING TEMPERATURES

Tools can be in three states::

- Active
- Standby
- Off

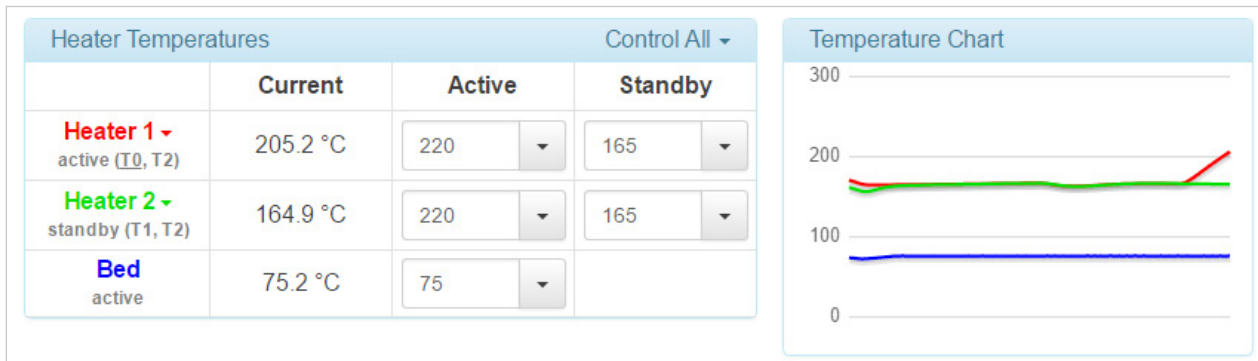
Only one tool can be active at any one time.

The active tool is set to the defined active tool temperature, standby tools are set to the standby tool temperature, tools that are "off" have their heaters turned off.

In this image the tool choices for heater 1 are shown as T0 and T2 (due to the specific dual independent X axis printer setup, just having 1 tool per heater is normal). Both heaters are in standby mode, at 170C and the bed is active at 75C.



After T0 is selected it becomes active and the temperature rises from the standby temperature to the active temperature



HOMING AND MOVING AXES

Before some axes can be moved they must be homed, it is best practice to ensure all axes are homed before moving them. If an axis requires other axis to be homed before it is homed you get an error, as shown below:



Once the axes are homed they turn from orange to blue:



Axes can be moved using the buttons in large or small steps and the axes co-ordinates are shown in the machine status box:

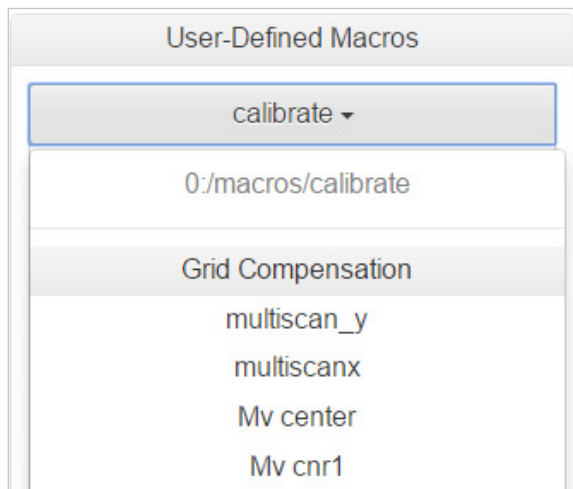
Machine Status				
Head Position	X	Y	Z	U
	-15.4	100.0	1.10	330.4
Extruder Drives	Drive 1		Drive 2	
	0.0		0.0	
Sensors	CPU Temp.		Z-Probe	
	44.8 °C		0	

Note that by default an axis will not be allowed to move outside of the printing volume set in the printer configuration file.

MACROS AND MISCELLANEOUS

To run a macro simply click on the macro name, or select it from a sub directory drop down:

Defining macros is shown in a later step in these instructions.



PRINT STATUS

The print status page does not display any useful information until a print is started. Once a print is started though it shows the layer times, forecast for print time remaining based on the layer numbers and/or filament usage. It also allows for Fan, extrusion ratio and print speeds to be adjusted in real time:

Printing 2_Dual-Extruder_Lattice_Cube.gcode, 3.5% Complete

Print Control

Pause Print

Override Fan Value

100 %

Enable Auto-Sleep

File Information

Size:
25.4 MiB

Object Height:
93.1 mm

Layer Height:

Layer Statistics

Collected Data			
Warm-Up Time	Current Layer Time	Last Layer Time	Print Duration
01s	15s	01m 13s	37m 58s

Speed Factor

100 %

Extrusion Factors

Extruder 1: 100 %

Extruder 2: 100 %

The some of the reported information is reliant on the slicer placing the correct information at the end of the gcode file. Simplify3d, Slic3r and some versions of Cura do this.

GCODE CONSOLE

The Gcode console provides a log of gcodes entered, responses and errors / warnings / notifications received from the control board by the web interface since the browser was last refreshed.

In the example below the error of trying to home the Z axis before the other axes are homed is shown, along with a couple of example information gcodes entered in the console.

Gcodes can also be entered in the quick gcode entry box as shown with M302 in this example, with the output shown in the console. If the console page is not selected any output from the quick gcode entry box is also shown as a popup message.

Disconnect

Send
Upload & Print
DWCExample
Idle
Emergency STOP

Heater Temperatures Control All ▾

	Current	Active	Standby
Heater 1 <small>active (T0, T2)</small>	220.0 °C	220 ▾	165 ▾
Heater 2 <small>standby (T1, T2)</small>	164.9 °C	220 ▾	165 ▾
Bed <small>active</small>	75.0 °C	75 ▾	

Temperature Chart

Machine Status

Head Position	X	Y	Z	U
	-15.4	100.0	1.10	330.4
Extruder Drives	Drive 1		Drive 2	
	0.0		0.0	
Sensors	CPU Temp.		Z-Probe	
	47.2 °C		0	

Machine Control
Print Status
G-Code Console
G-Code Files
Macros
Settings

Send
Clear Log

18:53:29	M302 Cold extrusion is denied, use M302 P[1/0] to allow/deny it
18:49:40	M114 X: -15.40 Y: 100.00 Z: 1.10 U: 330.35 E0: 0.0 E1: 0.0 E2: 0.0 E3: 0.0 E4: 0.0 E5: 0.0 Count -1232 36000 1760 26428
18:49:35	M119 Endstops - X: at min stop, Y: not stopped, Z: not stopped, U: at max stop, Z probe: not stopped
18:32:18	G28 Z Error: Must home all other axes before homing Z
18:32:06	G28 Z Error: Must home all other axes before homing Z
18:25:34	Connection established!
18:25:34	Page Load complete!

GCODE FILES

The Gcode Files page allows for .gcode files for printing to be uploaded, downloaded, deleted and sorted into sub directories. A summary of the print time and other information is provided, if the slicing software puts this information in the gcode file in a format readable by the Atlas.

As shown in the image, there is a drop down menu to select the external SD card if one is attached to the printer.

The screenshot shows the DWC interface with the following components:

- Machine Control:** Disconnect, M302, Send, Upload & Print, DWCEXample, Idle, Emergency STOP.
- Heater Temperatures:**

	Current	Active	Standby
Heater 1 - active (T0, T2)	220.0 °C	220	165
Heater 2 - standby (T1, T2)	165.1 °C	220	165
Bed active	74.9 °C	75	
- Temperature Chart:** A line graph showing temperature levels for Heater 1 (red), Heater 2 (green), and Bed (blue) over time.
- Machine Status:**

Head Position	X	Y	Z	U
	-15.4	100.0	1.10	330.4

Extruder Drives	Drive 1	Drive 2
	0.0	0.0

Sensors	CPU Temp.	Z-Probe
	47.7 °C	0
- G-Code Files Table:**

	Size	Object Height	Layer Height	Filament Usage	Generated by
special					
2_Dual-Extruder_Lattice_Cube.gcode	25.4 MiB	93.1 mm	n/a	n/a	n/a
80mm_Square.gcode	87.9 KiB	15 mm	0.3 / 0.3 mm	n/a	Cura at Thu 20-10-2016 17:20:54
scaffold_holder_plate.gcode	2.3 MiB	20.1 mm	0.3 / 0.3 mm	20282.2 mm	Simplify3D(R) Version 3.1.1
Spiral_Level_Test_dual.gcode	820.1 KiB	2.1 mm	0.3 / 0.3 mm	3399.3 mm	Simplify3D(R) Version 3.1.1

The file upload functionality cannot be used during a print to prevent interference with reading the SD card for an ongoing print:

The modal dialog displays the following information:

- Title:** Uploading File(s), 95% Complete (926.0 KB/s)
- Message:** Please wait while the following files are being uploaded:
- Table:**

Filename	Size	Progress
XY-plate-2.gcode	10.3 MB	95 %
- Buttons:** Cancel Upload(s)

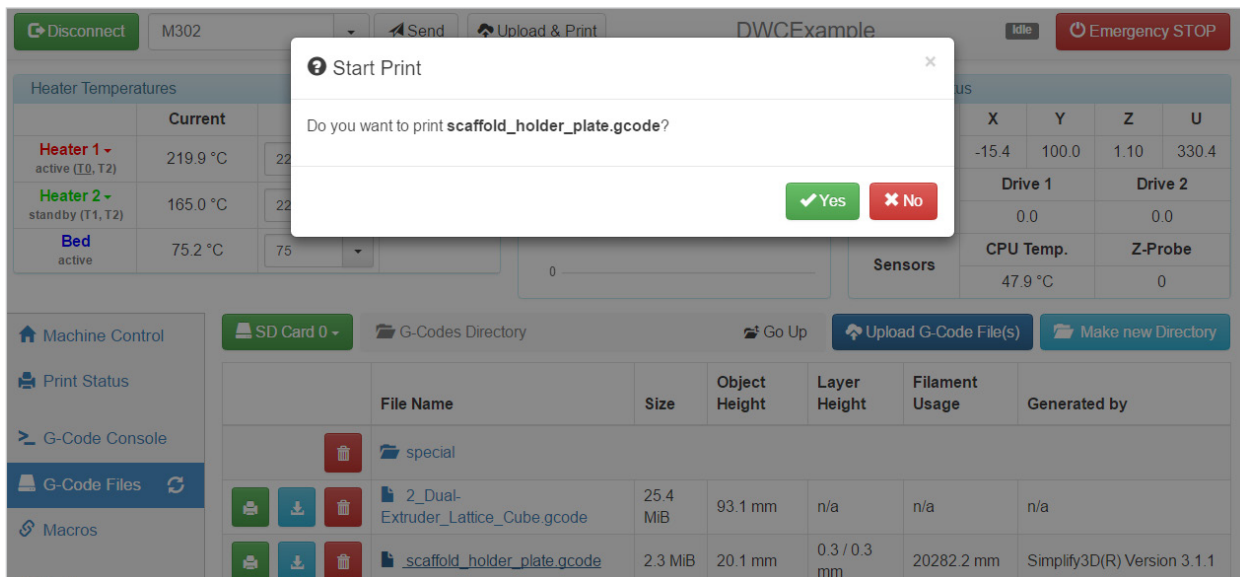
Files can be dragged and dropped in to sub directories for organisation.

The screenshot shows the G-Code Files table with a file being dragged over it:

	File Name	Size	Object Height	Layer Height	Filament Usage	Generated by
	80mm_Square.gcode					
	2_Dual-Extruder_Lattice_Cube.gcode	25.4 MiB	93.1 mm	n/a	n/a	n/a
	.80mm_Square.gcode	87.9 KiB	15 mm	0.3 / 0.3 mm	n/a	Cura at Thu 20-10-2016 17:20:54
	scaffold_holder_plate.gcode	2.3 MiB	20.1 mm	0.3 / 0.3 mm	20282.2 mm	Simplify3D(R) Version 3.1.1
	Spiral_Level_Test_dual.gcode	820.1 KiB	2.1 mm	0.3 / 0.3 mm	3399.3 mm	Simplify3D(R) Version 3.1.1
	z_axis_guide_top_upper_x4.gcode	757.8 KiB	7.25 mm	0.3 / 0.3 mm	n/a	Cura at Tue 01-11-2016 21:39:26

STARTING A PRINT

Clicking on a file prompts you if you want to print it.

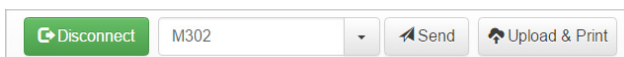


The screenshot shows the DWC interface with a 'Start Print' dialog box open. The dialog box asks: 'Do you want to print scaffold_holder_plate.gcode?' and has 'Yes' and 'No' buttons. The background shows the machine control panel with heater temperatures, a file list, and various control buttons.

Heater	Current	Target
Heater 1 - active (T0, T2)	219.9 °C	220.0 °C
Heater 2 - standby (T1, T2)	165.0 °C	220.0 °C
Bed active	75.2 °C	75.0 °C

File Name	Size	Object Height	Layer Height	Filament Usage	Generated by
special					
2_Dual-Extruder_Lattice_Cube.gcode	25.4 MiB	93.1 mm	n/a	n/a	n/a
scaffold_holder_plate.gcode	2.3 MiB	20.1 mm	0.3 / 0.3 mm	20282.2 mm	Simplify3D(R) Version 3.1.1

You can also use the upload and print button in the header bar to quickly start a print.



MACROS

Macros are a powerful addition as they allow automation of any process that can be described in Gcodes. There are two general types of macros: system Macros which will be described later, and user macros which are described here.

The Macro screen shows a list of all the user macros that are currently on the on-board SD card in the Duet (in the /macros/ directory):

The screenshot displays the 'Macros' page in Duet Web Control. At the top, there are three panels: 'Heater Temperatures' with a table, 'Temperature Chart' with a line graph, and 'Machine Status' with a table. Below these is a navigation sidebar on the left and a main content area showing a file directory for '/macros/'.

	Current	Active	Standby
Heater 1 - standby (T0, T2)	31.4 °C	220	0
Heater 2 - standby (T1, T2)	31.2 °C	220	0
Bed active	75.1 °C	75	

Head Position	X	Y	Z	U
	-14.0	100.0	1.10	330.4
Extruder Drives	Drive 1		Drive 2	
	0.0		0.0	
Sensors	CPU Temp.		Z-Probe	
	46.5 °C		0	

File Name	Size	Last modified
calibrate		
E motors off	36 B	31/05/2016, 10:59:03
Extrude 5mm	34 B	31/05/2016, 10:59:03
Load filament	99 B	31/05/2016, 10:59:03
Motors off	3 B	unknown
Purge_Dual	132 B	12/11/2016, 17:25:28

Macros can be organised into sub directories and dragged and dropped between them. As well as editing macros in a text editor and then uploading them, they can also be created and edited within Duet Web Control in the browser:

The screenshot shows a text editor window titled 'Editing 0:/macros/PreparePrinter'. The G-code content is as follows:

```
G28 ; Home all Axis
G10 P0 S220 R220 ; set both standby and active temperatures to 220C on tool 1
G10 P1 S220 R220 ; set both standby and active temperatures to 220C on tool 1
T0 ; Tool 0 active
M116 ; wait for temperatures to stabilise
M98 P0:/macros/Purge_Dual
```

At the bottom right of the editor, there are 'Cancel' and 'Save Changes' buttons.

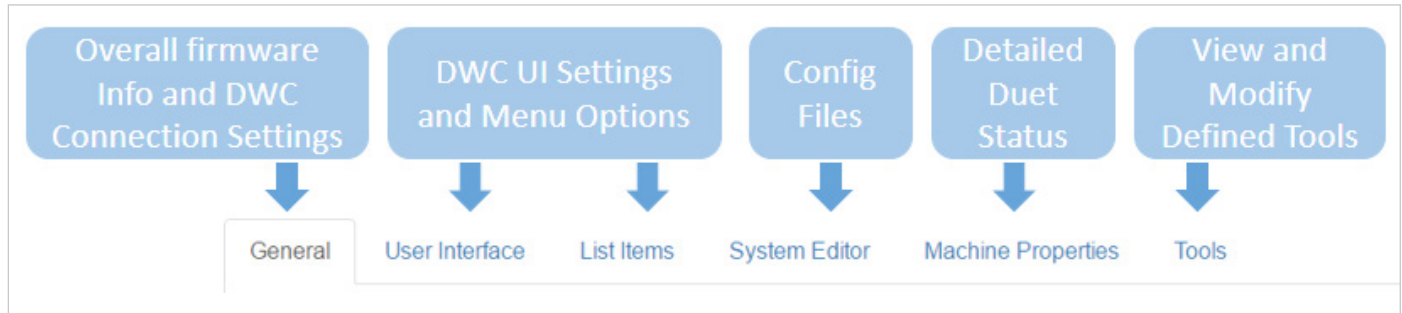
In this example I created a new macro called "PreparePrinter", this macro homes the printer, sets the hotend temperatures, waits for them to be reached and then calls another macro (using M98) to purge both hotends.

SETTINGS

The settings page has a number of sub pages which give information and allow for the configuration of both Duet Web Control, and control board to be updated.

Currently these settings are stored by Duet Web Control as a local cookie.

OVERVIEW



GENERAL

This shows the versions of the firmware, webserver and DWC installed, along with a button to upload new firmware:

The screenshot displays the DWC settings interface, organized into three main sections:

- Software Information:** Lists installed components and their versions:
 - Firmware Name: RepRapFirmware for Duet WiFi
 - Firmware: Duet WiFi 1.0 +
 - Electronics: DueX2
 - Firmware Version: 1.17dev6 (2016-11-22)
 - WiFi Server Version: 1.03 (ch fork)
 - Web Interface Version: 1.13
 A note at the bottom states: "Web Interface by Christian Hammacher Licensed under the terms of the [GPL v2](#)".
- Communication:** Contains several settings:
 - Connect automatically
 - Status Update Interval: 250 ms
 - Extended Status Update after every: 10 th response
 - Maximum number of AJAX retries: 1
- Reconnect Preferences:** Features four delay settings in seconds:
 - Reconnect Delay on Halt: 10 s
 - Reconnect Delay on Firmware Update: 20 s
 - Reconnect Delay on Duet WiFi Server Update: 45 s
 - Reconnect Delay on Duet Web Control Update: 225 s

Below these sections is a "File Upload for /sys and /www Directories" area with an "Upload File(s)" button. At the bottom, there are two large buttons: "Apply Settings" (blue) and "Load Factory Defaults" (orange).

This screenshot shows a modal dialog box titled "Uploading File(s), 44% Complete (266.7 KiB/s)". The dialog contains the text "Please wait while the following files are being uploaded:" followed by a table:

Filename	Size	Progress
📁 DuetWiFiFirmware.bin	256.1 KiB	44 %

At the bottom right of the dialog is a red button labeled "Cancel Upload(s)".

When a new firmware file is uploaded the web interface will prompt you if you want to install it immediately:

This screenshot shows a modal dialog box titled "Perform Firmware Update?". The text inside reads: "You have just uploaded a firmware file. Would you like to update your Duet now?". At the bottom, there are two buttons: a green "Yes" button and a red "No" button.

You do not need to install the firmware immediately as it can be initialted from the console/over USB/from a PanelDue at a later point.

Also on this page are setting for DWC in the browser communicating with the RepRapFirmware running on the Duet. The default communication settings should work well however if you are having intermittent network issues resulting in AJAX errors then increasing the maximum number of AJAX retries will help.

USER INTERFACE

Many elements of how the user interface responds can be set on this sub page, along with adding an information to display the output from an IP camera.

LIST ITEMS



















The list items sub page allows for certain drop down options to be changed or added to with the DWC User Interface. The default gcodes that are an option in the Quick Gcode entry box and the console can be modified, along with the default temperature selections for hotend / bed / chamber.

For example, adding a cold extrusion override as a menu option:

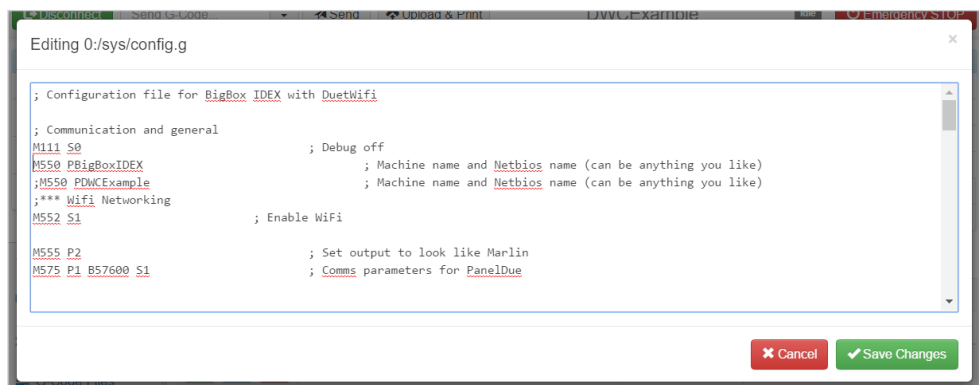
Gives this result in drop down menus:

SYSTEM EDITOR - ADVANCED USER ONLY

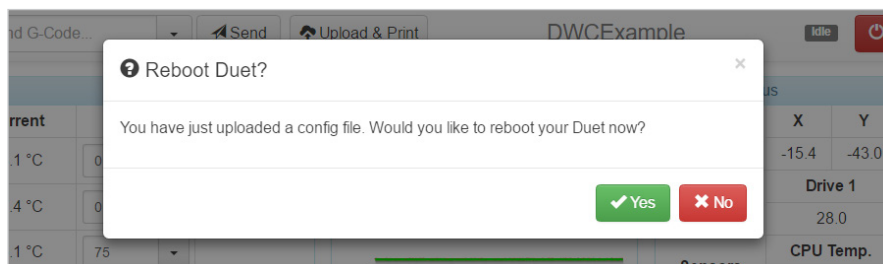
All the configuration of the firmware is carried out by gcode commands stored in specifically names gcode files within the /sys/ directory on the on-board SD card. These are also known as system macros.

System Directory Refresh			
	File Name	Size	Last modified
  	bed.g	1.4 KiB	31/05/2016, 10:59:03
  	cancel.g	75 B	11/11/2016, 16:37:13
  	config.g	3.4 KiB	07/12/2016, 16:48:04
  	deployprobe.g	283 B	31/05/2016, 10:59:03
  	DuetWebControl.bin	3.0 MiB	08/11/2016, 21:41:13
  	DuetWiFiFirmware1.1.6.bin	249.1 KiB	22/11/2016 21:29:10

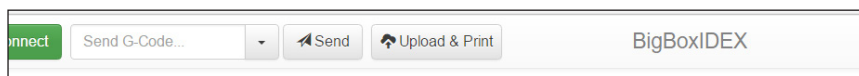
These changes can be made by downloading the files and editing them in a text editor before uploading them (this has the advantage of maintaining a local copy). Alternatively all the changes can be made by editing the files within the web interface:



In this case The config.g file is being edited to change the printer name from "DWCEXample" to "BigBoxIDEX". After the config file is saved the web interface prompts to reboot:



Setting changes to config.g do not come into effect until the duet is rebooted, in this case after reboot then printer name is changed:



Changes to other system macros such as the homing, tool change, pause etc macros come into effect without rebooting as they are read every time the printer is homed, tools are changed, a print is paused etc.

MACHINE PROPERTIES

This table provides a summary of the configuration of the various drives within the ATLAS controller along with endstop trigger status, z probes information and other miscellaneous information. The Firmware diagnosis button runs the M122 Gcode which outputs a detailed diagnostic dump to the console.

Drive Configuration							
Drive	Endstop hit	Minimum	Maximum	InstantDv	Max Speed	Acceleration	Motor Current
0	Yes	-15.4 mm	250 mm	2 mm/s	300 mm/s	800 mm/s ²	600 mA
1	No	-43 mm	198 mm	8 mm/s	300 mm/s	1000 mm/s ²	800 mA
2	No	-0.4 mm	300 mm	0.04 mm/s	6 mm/s	100 mm/s ²	800 mA
3	Yes	64 mm	330.35 mm	2 mm/s	300 mm/s	800 mm/s ²	600 mA
4	Yes	n/a	n/a	0.5 mm/s	50 mm/s	5000 mm/s ²	800 mA
5	Yes	n/a	n/a	0.5 mm/s	50 mm/s	5000 mm/s ²	800 mA
6	Yes	n/a	n/a	2 mm/s	20 mm/s	250 mm/s ²	800 mA
7	No	n/a	n/a	2 mm/s	20 mm/s	250 mm/s ²	0 mA
8	No	n/a	n/a	2 mm/s	20 mm/s	250 mm/s ²	0 mA
9	No	n/a	n/a	2 mm/s	20 mm/s	250 mm/s ²	0 mA

Z-Probe

Type:
Unmodulated (1)

Trigger Height:
1.1 mm

Trigger Value:
500

Other

Geometry:
Cartesian

Motor Idle Current Factor:
30%

Motor Idle Timeout:
30s

🔧 Firmware Diagnostics

TOOLS

This sub page shows the configured tools and allows for tools to be added or removed. Currently these additions and removals don't persist through hardware resets so it is recommended to add tools using the config.g

Define new Tool

Associated Heater(s):

Tool Number: 1 2 3 4 5 6 7

Associated Drive(s):

127 0 1 2 3 4 5 6

+ Add Tool

Tool 0

Heaters:
1

Drives:
0

✎ Select
🗑 Remove

Tool 1

Heaters:
2

Drives:
1

✎ Select
🗑 Remove

Tool 2

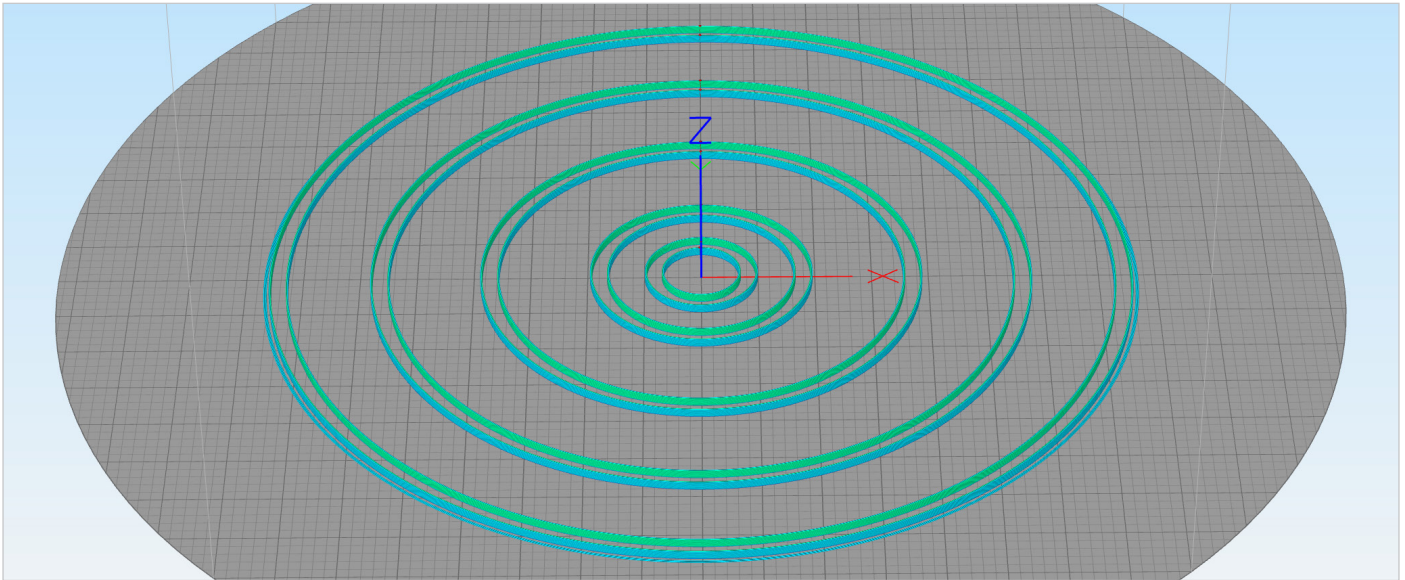
Heaters:
1, 2

Drives:
0, 1

✎ Select
🗑 Remove

TEST PRINT - PLA MATERIAL

1. Spread a thick coat of Dimafix fixative glue on the build plate.
2. In the internal memory there is a test file ready to be printed.
LCD > FILES > CARD 0 > Calibration Concentric.gcode
3. While printing the first layer adjust the bed levelling knobs until you get the optimal layer adhesion.
4. Wait the printer to cool down before removing the printed object

**PRINT YOUR OWN GCODE**

You can print your Gcodes in 3 different ways:

- PREFERRED. Load the Gcode into the internal memory using the WEB INTERFACE
- Load the Gcode on a FAT 32 formatted SD, insert the SD into the LCD
- Stream the Gcode through the USB connection using a host software like Pronterface (not safe for long prints)



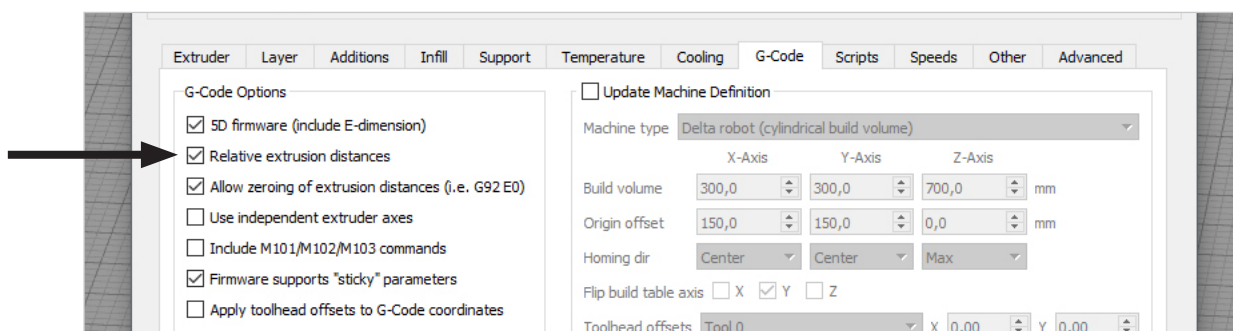
CAUTION: Do not turn off the printer until the hotend temperature is below 50°C.

SLICING RECOMMENDATIONS

For best accuracy we recommend slicing with relative extruder coordinates. This avoids the accumulation of rounding errors that firmwares suffer from when using absolute extruder coordinates. All popular slicers except Cura support relative extruder coordinates.

In your slicer start gcode, include M83 for relative extrusion. Some slicers insert these commands automatically, others do not.

The firmware supports multiple tools (i.e. print heads). You must always define which tool you want to use at the start of a print. If you are slicing for a single-tool machine, include T0 followed by M116 in your slicer start gcode.



BABY STEPPING

You can tune the nozzle height at any time but especially during the first layer by using the baby step function. This function is on the DWC as well on the LCD Control Interface.

The baby stepping is implemented in near real time, normally after the end of the current move or after 0.5 seconds, whichever is greater.



NOTE: The offset will be remembered until turn the next reboot. In the DWC you can change the baby stepping increments in the “User Interface” settings section.

The screenshot shows the DWC interface with the following sections:

- Print Control:** Includes a "Pause Print" button and an "Enable Auto-Sleep" checkbox.
- Z Baby Stepping:** Shows a "Current Offset: -0.04 mm" and two buttons for adjusting the offset: "-0.05 mm" and "+0.05 mm".
- File Information:** Lists details such as Size (218.8 KiB), Object Height (249.91 mm), Layer Height (0.31 mm / 0.3 mm), Filament Usage (9759.5 mm), and Generated by (Simplify3D(R) Version 4.0.1).
- Warm-Up Time:** Shows a duration of 51s.
- Based on:** A table with columns for "Time Left" and "Est. End Time".

The screenshot shows the "User Interface" settings page with the following sections:

- General:** Includes checkboxes for "Display File Sizes with Binary Prefix", "Always show info area and main menu", "Show Fan Controls", "Show Fan RPM in Sensors", and "Store Web Interface Settings on the Duet". It also features a "Language" dropdown set to "English" and a "Theme" dropdown set to "Bootstrap".
- Machine Control:** Includes input fields for "Default Move Button Feedrate" (set to 100 mm/s) and "Z Distance per Babystep" (set to 0,05 mm). It also has checkboxes for "Confirm Emergency STOP", "Half Z Movements", and "Show ATX Power control".

IN DETAILS

M290: Baby stepping

PARAMETERS

- Snnn Amount to baby step in mm. Positive values raise the head, negative values lower it.
- Znnn Synonym for S
- Rn R1 = relative (add to any existing babystep amount, the default), R0 = absolute (set babysteping offset to the specified amount)

EXAMPLES

- M290 S0.05 ; babystep the head up 0.05mm
- M290 R0 S0 ; clear babysteping

This command tells the printer to apply the specified additional offset to the Z coordinate for all future moves, and to apply the offset to moves that have already been queued if this case be done. Baby stepping is cumulative, for example after M290 S0.1 followed by M290 S-0.02, an offset of 0.08mm is used.

M290 with no parameters reports the accumulated baby stepping offset. Homing and bed probing don't reset babysteping, but you can reset it explicitly using "M290 R0 S0".

CHANGING NOZZLE



CAUTION: The extruder is hot, handle with care
Do not touch the heater cables with metal while heating is on.
Do not turn off the machine if the hotend temperature is above 50°C

The HeatBreak is fragile. If you are using a large spanner, hitting it with a hammer, etc. It will break.
Be careful with the thermistor, it is small and fragile. Be gentle with the legs.

When replacing parts be sure you have ordered (and received) the correct voltage heater and fan to match your 3D printer. If the heater cartridge specification is not lasered onto the cartridge, you can easily check with a multimeter. Connecting 12v parts to 24v power can result in overheating, component damage or fire.

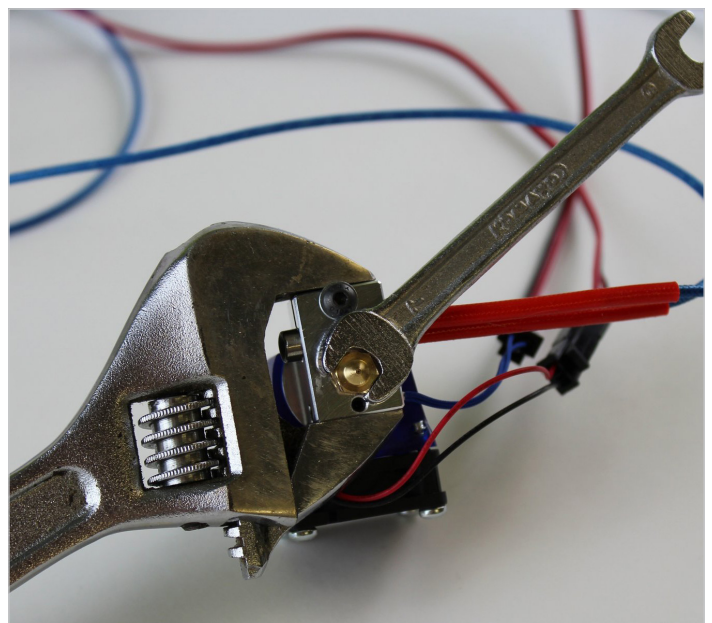
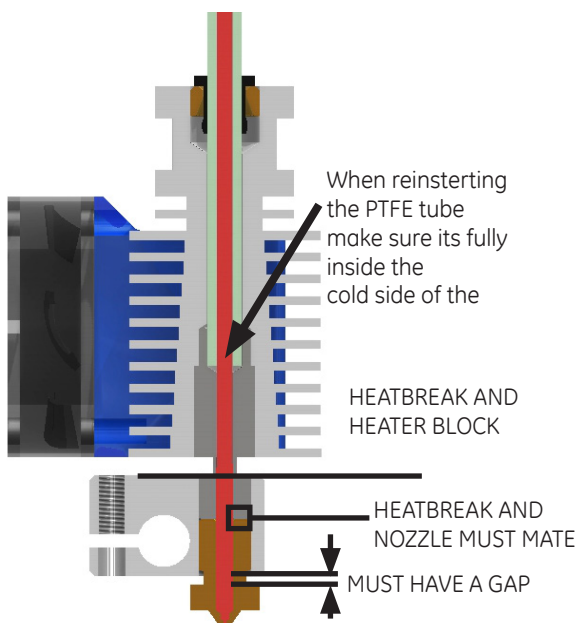
Tools needed:

- 16mm Spanner
- 7mm Spanner
- Pozi-Drive Screwdriver
- M2.5 Hex Wrench



IMPORTANT: When installing the nozzle make sure that the nozzle and the heat break mate up inside the heater block, this is needed to prevent leakage and filament jams.
An indication of succesful mating is resulting gap between the nozzle and the heater block after thightening the nozzle.

1. Preheat the hotend and un load the filament
2. Set the extruder nozzle temperature to 200° C. This will melt any plastic inside the extruder and loosen the nozzle.
3. Once the temperature has reached 200° C, use a crescent wrench and 7 mm wrench to remove the nozzle. Use the crescent wrench to hold the base steady and not able to rotate. Use caution—nozzle is hot!
4. Once nozzle is removed select the replacement nozzle. Nozzle size can be determined by inspecting stamped numbers along the side of the nozzle.
5. Once new nozzle has been selected, hand thread it into the extruder.
6. Then use the wrench and crescent wrench to tighten the nozzle into the assembly, only tighten until snug. **DO NOT OVER TIGHTEN.**
7. Once nozzle is tightened, set the extruder temperature from 200° C to 280° C. This will heat up the nozzle and ensure it has a tight fit.
8. Once the temperature has reached 260° C, use the wrench and crescent wrench to tighten the nozzle so it is snug.



CLEANING THE NOZZLE



CAUTION: Use extreme caution when maintaining or operating heated machinery. The nozzle must be heated to 180° C (minimum) when cleaning. Wear heat resistant gloves and use appropriate tools for all cleaning and maintenance.

When to clean the nozzle:

- When filament is not flowing smoothly
- When filament is not being extruded appropriately
- When changing material type
- Periodically between large prints—preventative maintenance

How to clean the nozzle:

1. Dip 20 mm of filament into canola oil and shake off excess
2. Heat nozzle to 250 - 260° C
3. Push filament through the extruder and nozzle by hand
4. Extrude 200 mm of filament
5. Repeat 3-4 times

NOZZLE TYPES

Nozzle Size		Brass	Hardened Steel	Stainless Steel	Copper Plated
undrilled		•			
0.15 mm	High Precision - Slower Prints	•			
0.25 mm		•	•	•	•
0.30 mm		•	•		•
0.35 mm		•	•		•
0.40 mm	Balanced Nozzle - Supplied by Default	•	•	•	•
0.50 mm		•	•		•
0.60 mm		•	•		•
0.80 mm	Lower Precision - High Speed	•	•	•	•

Brass:
engineered to 3D print perfectly smooth layers.



Hardened Steel:
3D printing with abrasives such as carbon fiber.



Stainless Steel:
Medical grade and food safe stainless steel nozzles.



Copper Plated:
Durable, non-stick, high temperature performance nozzles.



NOZZLE SIZES

Nozzle Size	Number of machine dots
0.15 mm	2 Diagonal
0.25 mm	0
0.30 mm	1
0.35 mm	2
0.40 mm	3
0.50 mm	6
0.60 mm	4
0.80 mm	5

SOURCE FILES

The 3DBNZ ATLAS printer produces three dimensional objects using the FFF—Fused Filament Fabrication—type of 3D printing. The file type that the ATLAS printer requires is .gcode, which is created from 3D model.

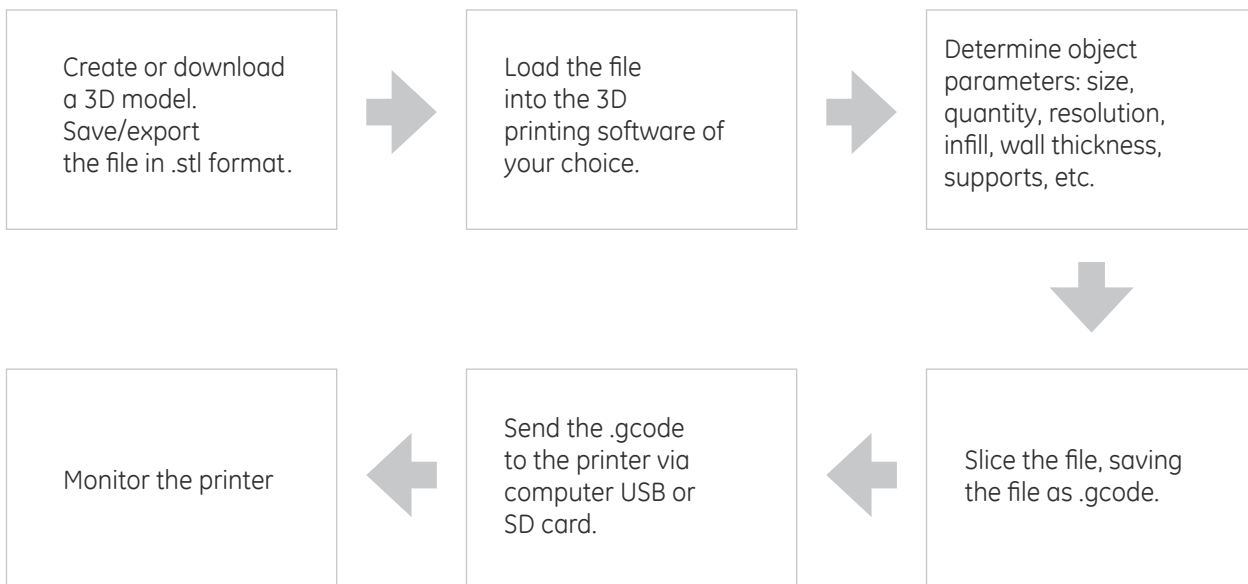
G-code is a numerical control programming language which defines instructions on where to move, how fast to move, and through what path to move.

3D models can be custom designed in CAD programs such as SolidWorks, Auto CAD, or Google SketchUp. CAD models are output in either .stl or .obj file format.

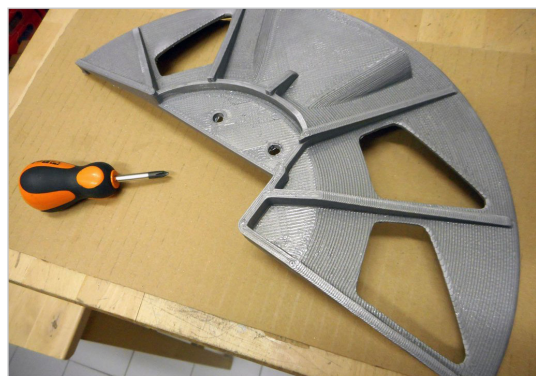
The .stl or .obj file is loaded into 3D printing software where 3D print parameters are applied. Once print parameters are applied and the file is processed—commonly called slicing—the file is output as a .gcode for the printer.

Models designed for 3D printing can be found online at sites such as: GrabCAD, 3D Marvels, 3D Via, Google 3D Warehouse, Turbosquid, and Thingiverse.

TYPICAL WORK FLOW



Printed object



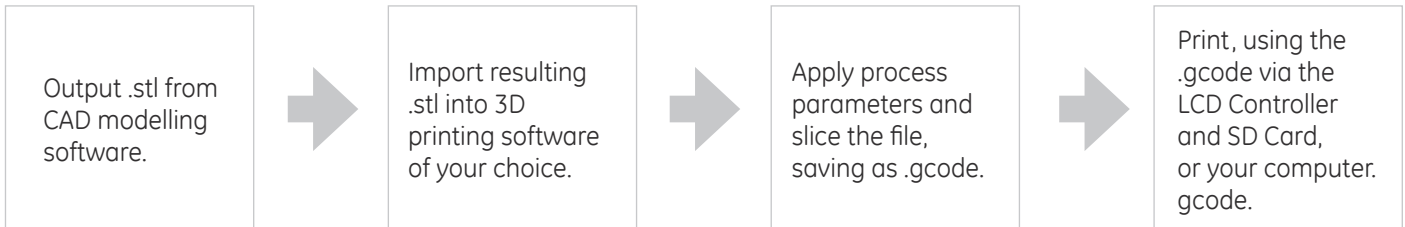
Post produced object



PREPARING FILE FOR USE

Before a 3D model can be printed on the ATLAS printer, two things must be done.

1. The CAD model must be converted to either an .stl file, and;
2. The resulting .stl file must be processed and sliced in 3D printing software and output as .gcode.

**CONVERTING 3D MODELS TO .STL FORMAT**

This procedure is based upon the use of Solidworks and may vary depending on the CAD software used, but generally, these guidelines apply.

1. From the File menu, select Save As or Export
2. Enter a file name
3. Under the File Type menu, select .stl
4. Select Options, set Resolution to Fine
5. Save

CONVERTING .STL FORMAT TO .GCODE

This procedure is intended to provide a general process flow. Other process settings may be needed.

1. Load or Import the .stl or .obj file into your 3D printing software.

Note: You can load multiple files into the 3D printing software in order to print multiple objects in one print.

2. Arrange the object(s) on the print bed and orient appropriately for FFF 3D printing—see Orienting the Part for Success on page 25 in the Printing Tips section of this manual.
3. Apply process (slice settings), including:
 - Layer height
 - Number of outside perimeters (vertical shells)
 - Number of solid top and bottom layers
 - Percentage of infill
 - Temperature
 - Speed
 - Z-hop
4. Select Prepare or Slice
5. Use the Preview by Layer function to visually inspect the object prior to printing.
6. Save, selecting File Type .gcode

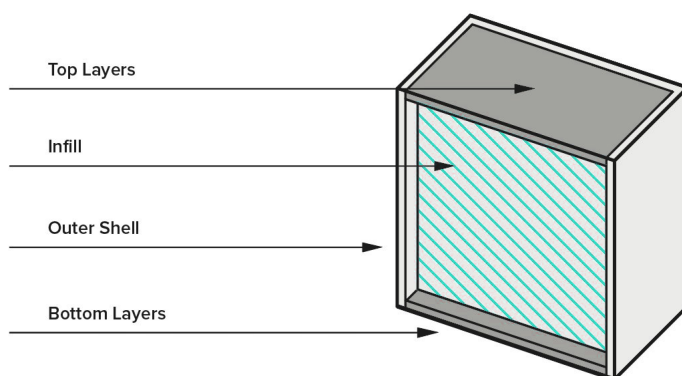


CAUTION: To avoid collision of the nozzle with wrapped parts of the print set the Z-hop value which will lift the nozzle when performing retractions. Especially PLA tend to wrap up small features that are not supported and/or not properly cooled.

BASIC SLICING PARAMETERS

Below the base setting you can use as a starting point to create your own profiles

Parameter	value
Filament Diameter	1.75 mm
Extruder Diameter	0.4 mm
Extrusion Multiplier	1
Layer Height	0.18 mm
Top Solid Layers	5
Bottom Solid Layers	5
Perimeter Outlines	2
First Layer Height Percentage	105 %
First Layer Width Percentage	105 %
First Layer Underspeed	40 %
Skirt Layers	1
Skirt Outlines	5
Retraction Amount	2 mm
Retraction Vertical Lift (Z hop)	1 - 2 mm
Retraction Speed	7200
Outline Overlap Percentage	40 %
Infill Percentage	30 %
Infill Extrusion Width Percentage	105 %
Speed	3000
Rapid Speed	6000
Acceleration	2000

**START GCODE**

make sure your slicing software has the following commands in the start routine:

G28 ; HOME

G92 E0 ; reset extruder lenght,

G0 Z20 F6000 ; approach the build plate

END GCODE

make sure your slicing software has the following commands in the end routine:

G28 ; HOME

M104 S0 ; turn off extruder

M140 S0 ; turn off bed

M107 ; turn off layer fan

3D PRINTING MATERIALS

The Atlas printer uses 'open source' materials meaning there are many different materials and manufacturers that can be used.

Here are a few guidelines when choosing filament:

- The material must be 1.75 mm diameter—this is the filament diameter that works with Atlas.
- The material must have a melt point of under 290° C—this is the high end temperature of the extruder and nozzle.
- The material's recommended bed temperature must be under 110° C—this is the high end temperature of the print bed.

Material	Recommended	
	Extruder Temp	Bed Temp
PLA	195-210° C	45-80° C
ABS	240-260° C	70-90° C
TPU	220-230° C	45-50° C
NYLON	230-265° C	90° C
PC	+250° C	125-130° C
HIPS	230-240° C	80° C
PVA	200-210° C	85° C

Note: The temperatures shown above are intended to provide a starting point when initially using different materials. Fine tuning and temperature adjustments should be expected. Also, see filament manufacturer recommended temperatures.

VENDORS & MANUFACTURERS

Material vendors that we have used include:

- formfutura.com
- treedfilaments.com
- filoalfa3d.com
- taulman3d.com
- verbatim.com

Online reference links:

- <http://filaments.ca/pages/temperature-guide>

This is a guide to temperatures for various materials such as PLA, ABS, HIPS, PVA, and many more. Simply click on the link for the material you are interested in and you will see information such as temperature requirements and speed recommendations for that material.

STORAGE RECOMMENDATIONS

Store filament in a cool place. Keep temperatures below 122° F (50° C). Keep material in sealed container or bag with moisture-absorbing desiccant.

Some filaments are more hydrophobic than others, If you cant keep your filament moisture free then before use dry it in the oven. (50°C for 60 min minimum)

SAFETY CONSIDERATIONS

Avoid contact with skin and eyes. Avoid dust formation. Users should be protected from the possibility of contact with molten material during the printing process. Use personal protective equipment when working with heated materials and surfaces.

FIRST AID

Eye contact: Rinse with water, also under the eyelids, for at least 15 minutes. Call a physician immediately.

Skin contact: Rinse with water for at least 15 minutes. If skin irritation persists, call a physician. Cool skin rapidly with cold water after contact with hot polymer.

Inhalation: Move to fresh air. Call a physician.

Ingestion: Drink water as a precaution. Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Call a physician.

Notes to physician: Treat symptomatically.

MEASURE THE FILAMENT

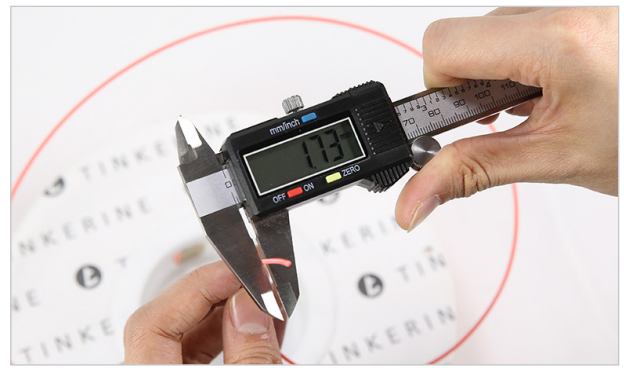
The standard nozzle for ATLAS printer is 0.4 mm which requires 1.75 mm filament.

However, filament diameters vary depending on manufacturer.

For consistent layer resolution and high print quality, measurements are recommended.

Measure the filament diameter with a micrometer in several areas along the filament roll.

Enter the actual diameter in the slicing software.



THE IMPORTANCE OF TEMPERATURE

EXTRUDER TEMPERATURE:

Each material you use with the ATLAS printer will likely require a different temperature for the extruder. The nozzle temperature will also change in relation to ambient temperature, moisture in the filament, nozzle size, etc.

RULE OF THUMB:

If you can extrude filament by pushing by hand with little force (depends on nozzle size) then you are near the sweet spot.

Start with the temperatures provided and make adjustments as needed.

- If your extruder is not hot enough, the filament may not adhere to the print bed.
- If your extruder is not hot enough, the filament may not adhere from layer to layer.
- If your extruder is too hot, the filament may warp or you may see an unwanted variance in layer width.

PRINT BED TEMPERATURE:

The print bed on the ATLAS printer is heated to provide better adhesion of your printed parts. Each material you use will likely require a different bed temperature.

- For easy removal of large or small parts, simply turn your bed temperature down to 20° C. You will hear the plastic loosening and the part will pop off the print bed.

SEASONING THE NOZZLE

The canola oil treatment is used primarily as routine maintenance of the nozzles. However, this treatment should also be used prior to using a new nozzle to help prevent clogging and promote smooth filament flow.

Canola oil treatment:

1. Dip 20mm of filament into oil and shake off excess
2. Heat nozzle to 250-260° C
3. Push filament through the extruder and nozzle by hand
4. Extrude 200 mm of filament
5. Repeat 3-4 times

GETTING A GOOD FIRST LAYER

The first layer IS the most important layer of any print and perhaps the most difficult. A good first layer is vital to the success of your print.

Qualities of a good first layer include:

- Clean (clear of debris), prepared glass.
- Sticky build plate
- Proper bed temperature.
- Optimal first layer nozzle height

A good first layer adheres to the print bed, is the correct distance from the print bed, is visibly smooth and level, without gaps or bumps.

Here are a few tips for getting a good first layer:

- Make sure the print bed is level.
- Prepare the glass using fixative spray.
- Adjust the build plate height while printing first layer

Getting the first layer height dialed in is critical

- If the first layer is too high and it will not stick.
- If the first layer is too low it will create a valley, and may drag the nozzle on the glass.

The first layer height is correct when the bead of filament is flattened slightly and even.

- Heat the print bed to the recommended temperature base upon the material being used.

If adhesion problems persist:

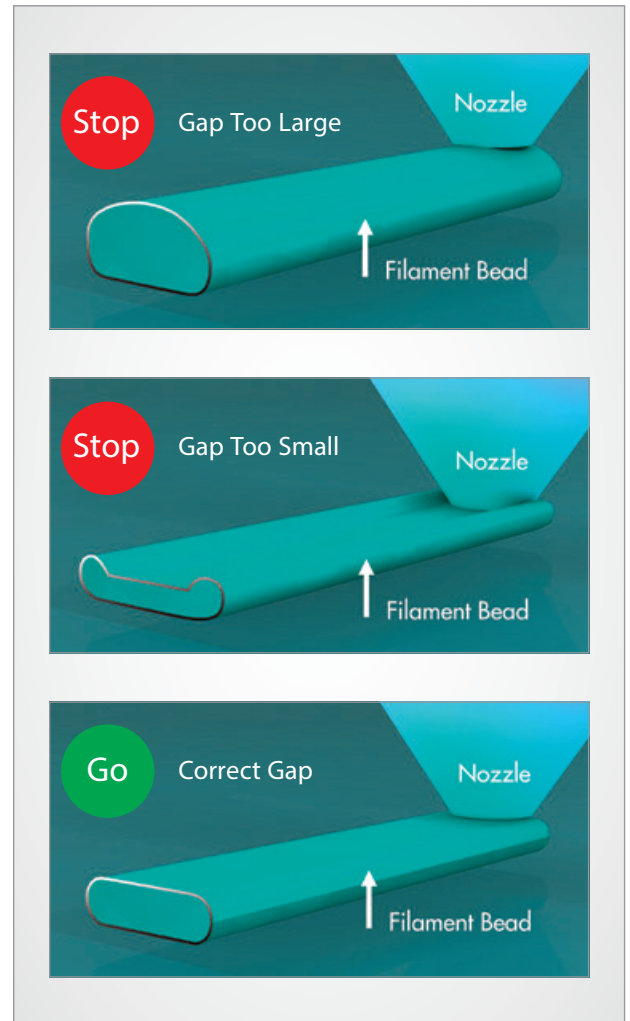
- Increase bed temperature to 80-85° C
- Increase the nozzle temperature by 10-20° C for the first 1-3 layers to aid in adhesion.
- Decrease the printing speed by 30% for the first layer
- Increase the flow rate by 5-10% for the first layer
- Print a test print to ensure good first layer adhesion

ORIENTING THE PART

Part orientation—the direction the part is positioned on the print bed—effects the print quality, print time, surface finish, and overall print-ability of the model.

The following tips are intended to assist in orienting your part for a successful print:

- Position so the most surface area is in level contact with the print bed.
- If possible, orient the part to reduce or eliminate support structures.
- Consider surface finish. Which part of the model is most important? Position the part accordingly.
- Reducing support structures will reduce print time.
- When break-away support structures are used directly on the print bed, the use of a raft may be necessary to avoid adhesion problems.



LIMITATIONS

- You must be able to re-home the printer with a print on the bed.
- If the print becomes detached from the bed while the power is off due to loss of bed heat, you won't be able to resume the print.

HOW IT WORKS

Any time you pause a print from SD card, the state of the print is saved to a special file on the SD card, `sys/resurrect.g`

When the power supply voltage drops below the auto-pause threshold voltage, the heaters are turned off to conserve power, the state of the print is saved to file `sys/resurrect.g` on the SD card, the power fail script specified in the M911 command is run, and the print is left in a paused state,

After the power is restored, you can use command **M916** to resume the print from where it stopped. This command runs file `sys/resurrect.g` which calls `sys/resurrect-prologue.g` at an appropriate point to home the printer.

When you execute **M916** (`sys/resurrect.g`) it performs the following operations:

- Set bed and chamber heater temperatures
- Set all tools and heaters to their saved temperatures and other parameters, and set tools to active or standby as needed (without executing tool change macros)
- Call `sys/resurrect-prologue.g`
- Restore fan speeds, move the head to where it stopped printing, and resume the print

At the very least, your `sys/resurrect-prologue.g` file must do the following:

Execute M116 to wait for all heaters to reach operating temperature. You may do this either before or after homing axes.

If your power fail procedure in the M911 command retracts filament and your printer has a single nozzle, you may wish to undo the retraction.

SPURIOUS HEATER FAULTS AND HOW TO AVOID THEM

The printer monitors the heater temperatures to check that they are behaving as expected.

The purpose is to detect situations that might pose a fire hazard, such as a thermistor becoming detached mechanically from the heater block or bed, or a heater cartridge falling out. The downside of having this protection is that the firmware may mistakenly think there is a heater fault in certain situations.

SYMPTOMS OF A HEATER FAULT

- The web interface will show the heater status as “error” instead of “active”.
- PanelDue will show the current heater temperature with a purple background.
- An error message will be generated describing the reason for the fault. Go to the Console page of DuetWebControl or PanelDue to see the message.
- The heater will stop heating, and cannot be commanded on again until you reset the heater with **M562**

FAULTS WHEN HEATING UP

The message in this case is “temperature rising much more slowly than the expected x.xC/sec”.

This fault occurs if the rate of temperature increase is less than 75% of the value expected from the heater model defined by M307 and this condition persists for more than 5 seconds.

To avoid these faults:

Run tuning on that heater if you have not already done so, and copy the resulting values into a M307 command in config.g. See https://duet3d.com/wiki/Tuning_the_heate...

If the expected temperature rise in the message is 0.0C/sec or some other very low value, upgrade to version 1.15d or later firmware. Check that there is not an excessive amount of noise in the temperature reading. The temperature graph shown in DuetWebControl should be smooth.

FAULTS WHEN MAINTAINING TEMPERATURE

The message in this case is “temperature excursion too large” or “temperature excursion exceeded 10.0C”. This fault occurs if the temperature came to within 2.5C of the setpoint temperature, but subsequently departed from the setpoint temperature by more than 10C for more than 5 seconds.

To avoid these faults:

Check that the heater maintains a stable temperature with no large excursions. If you are using manual PID parameters, you may need to change them. Or you can let auto tuning set the PID settings for you.

A very strong print cooling fan may cause the nozzle temperature to drop suddenly, either when it turns on at the end of the first layer, or subsequently if the print deflects the air on to the nozzle heater block.

A drop of 10C is likely to cause extrusion difficulties as well as heater faults.

You can use the M570 command to extend the allowed temperature excursion and/or the fault trigger time. See http://reprap.org/wiki/G-code#M570:_Conf...

FAULTS WHEN TUNING

The message in this case is “Auto tune cancelled because temperature is not increasing”.

This happens when the temperature has not increased by at least 3C within 30 seconds + the configured dead time of the heater. It can occur on a bed heater with a large thermal mass and a weak heater.

To avoid these faults:

You can try P1.0 for the bed heater.

You can also temporarily increase the configured dead time for that heater. For example, sending M307 H0 D60 before sending the M303 tuning command will increase the heater 0 dead time to 60 seconds.

HOW TO RESET A HEATER FAULT WITHOUT RESTARTING THE PRINTER

Send M562 P# where # is the heater number.

You can just send **M562** with no parameters to reset all heaters that are in the fault state.

When something goes wrong, particularly in the middle of a long print, it can be useful to have a log of what happened (at least as much as the electronics know).

When event logging is enabled, important events such as power up, start/finish printing and (if possible) power down will be logged to the SD card. Each log entry is a single line of text, starting with the date and time if available, or the elapsed time since power up if not. If the log file already exists, new log entries will be appended to the existing file.

CAUTION: do not rename or delete the current log file while logging is enabled!

Use the M929 to enable and disable logging and to specify the log file name. By default, logging is disabled. You can use a M929 command in config.g to enable it.

M929: Start/stop event logging to SD card

PARAMETERS

- P"filename" The name of the file to log to. Only used if the S1 parameter is present. A default filename will be used if this parameter is missing.
- Sn S1 = start logging, S0 = stop logging

Example

- M929 P"eventlog.txt" S1 ; start logging to file eventlog.txt
- M929 S0 ; stop logging

Some other way of obtaining diagnostics information are:

There is a built-in setting in the web interface to request that the Duet log every G-code and its response, but during a print this can be overwhelming.

You can obtain a little more information by having your slicer embed additional G-code into the print:, for example adding M114 (report position) to the code at every layer change.

The firmware can be put in debugging mode with M111, which should result in many more messages. You can specify debugging messages only from certain submodules; to get a list, send M111 S1 P15. Debug output goes only to USB.

M111: Set Debug Level

PARAMETERS

- Pnnn Debug module
- Snnn Debug on/off

Examples

- M111 S6
- M111 P1 S1

Enable or disable debugging features for each module. If the optional 'P' parameter is not specified, debugging will be enabled for all modules. For a list of modules, send M111 S1 P15.

It's not a log, but the M122 command will have the firmware report its status, including (for example) information about under- and over-voltage events.

The output goes into the G-code console.

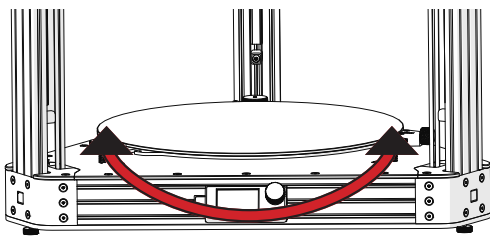
You can fine tune the concave / convex movement in the XY plane, characteristic of the delta kinematic, by following this guide.

1. Turn on the printer.
2. Connect to the machine thru the DWC interface.
3. Navigate to the *Gcode Console* menu.
4. Type **M665** and click Send

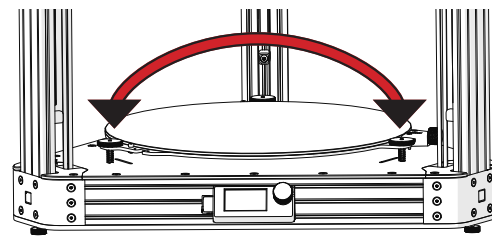
The controller will respond with the current geometry configuration like below :

Diagonal 1146.000, delta radius 572.500, homed height 1677.500, bed radius 500.0, X 0.001°, Y 0.000°, Z 0.000°

5. The value responsible of the concave /convex movement is **delta radius (delta radius = R)**
6. Adjust the **R** value with 0.5mm increments.



Nozzle too LOW in the center = lower **R** value



Nozzle too HIGH in the center = Increase **R** value

In case of a nozzle too high in the center increase the current R value by 0.5mm: $572.5 + 0.5 = 573$

7. In the Gcode Console write **M665 R573** and click *Send*.
8. Home the printer as the new value will be used only after homing the printer.
9. Make a test print
10. Redo step form 6 to 9 until a good value is found
11. After a good R value was found you must save the new value in the config.g (machine configuration)
12. Navigate to: *Settings > System Editor > Config.g*
13. Replace the old R value with the new one
14. Click SAVE
15. Reboot

Movement of the axis is crucial. Without a proper movement, you are simply not able to print anything. It might be quite difficult to tell what is a normal movement and what starts to look a bit suspicious. Therefore, you can start by checking the most common sources of axis movement problems:

Dirty linear guides

Over time the linear guides might become quite dirty. Clean them with a paper towel and apply a little bit of general purpose machine oil. Then just move the axis back and forth a couple of times. This cleans the dirt and increases longevity.

Debris around the stepper motors pulleys

The 3D printing process may be accompanied by the production of plastic debris, such as supports, which will be falling around the printer. Make sure none of it will get between the 3 motors pulleys and the belt, as it might jam the axis movement.

Loose X,Y or Z axis motor shaft pulleys

Check this if you are encountering layer shifting during a print.

Motor shaft pulleys must be secured to the X, Y and Z motor shaft. Otherwise, the motor itself will not be able to move with the axis.

Simply check that both of the small black screws are fully tightened in both of the pulleys.

Loose X or Y axis belt

Both of the belts should be tight enough to sound like a low bass note when plucked. It is quite tricky to find the sweet spot. However, once you manage to find it, you will not have to re-tighten the belts anymore.

Jammed linear bearings

This usually may happen after hundreds of printing hours. You should be able to spot that the axis is not running smoothly anymore. If that's the case, then the affected bearings should be removed and greased on the inside (they need to be removed from axis because the plastic lip will prevent the grease from getting inside). Super-lube, or any other multi-purpose grease, will do.

Stretched belt

It may happen due to production defect or too much tensioning force that the belt will stretch beyond the designated tooth pitch of 2mm. Only an accurate visual inspection and feeling it by hand can find this kind of problems.

Keep the print surface clean

Having the print surface clean is vital for the extruded plastic to stick nicely. Gently wipe the surface with rubbing alcohol solution containing at least 90% isopropyl alcohol (IPA).

Once you suspect that none of these two is having any effect and your prints do not stick, then use ACETONE. It removes the grease better than IPA. The non-sticking print surface is mostly caused by moisturizing hand creams with silicone. So before you start cleaning the print surface, clean your hands first! ☐

If even the ACETONE does not rejuvenate the surface, then we have one last trick. Use a little bit of dish soap with water, then just dry the surface with a paper towel and use IPA again. Unlike the suggested IPA, Windex or ACETONE, dish soap is able to dissolve sugar residue, which might be ever so slightly present on the surface, preventing the plastic to stick perfectly.

Check both of your fans

The fans keep the heating components from getting too hot and also ensure that the extruded plastic is properly cooled.

Therefore, visually check if there is no debris inside the fan preventing it from spinning. In case there is any visual debris inside the fans, pull it out using tweezers.

Then hold the fan with your hand to keep it from spinning while you blow at it with a compressed air spray to clear the dust. This will prevent the fan blades and electronics from getting damaged during the process.

ASSISTANCE SERVICE

If you do not find a solution to your problem in this manual, please contact the 3DBNZ team through any of the following channels:

TECHNICAL ASSISTANCE

You can contact the technical assistance services by email, and we will answer you as quickly as possible. Please remember to include your phone number

EMAIL

If you have a question that is not related to technical assistance, please send us an email to the address below. A 3DBNZ expert will contact you as quickly as possible.
info@3dbnz.com

You can find all of this information in the Contact Section of our website:
3dbnz.com/contact/

Be sure to include the serial number of your computer machine you send us a query to help us provide the best possible services.

RETURNS POLICY

Returns will only accepted for products that have not been used within a period of 14 business days, starting from when the printer was delivered. Once this period has expired, all sales will be considered to be final. "Not used" is understood to mean products that have never been assembled, switched on, programmed or altered in any other way.

TERMS AND CONDITIONS OF SERVICE

The information in this manual is subject to change at any time without notice, and is provided solely for informational purposes. 3DBNZ reserves the right to change or modify the manual at any time at its sole discretion, and you agree to be bound by any such changes and/or modifications.

If you would like to get the most up-to-date information, please contact 3DBNZ technical team or visit the www.3dbnz.com website.

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HOW TO GET WARRANTY SERVICE

In case of issues with the Product:

1. Notify the seller before the end of the Warranty Period
2. Supply all the information to 3DBNZ or to the authorized service company about the nature of the claim in the period of two (2) months since its detection and never after the end of the Warranty Period.
3. Supply the original proof of purchase, which includes the Product serial number. In case of doubt, contact the 3DBNZ Technical Assistant Service ("TAS") (info@3dbnz.com) or the authorized service company.

CLAIM HANDLING

1. The remedy of the non-conforming Product is solely determined by 3DBNZ or the authorized service company within a reasonable commercial time.
2. The amendment may consist in the repair, part replacements or total substitution of the Product, depending on each situation and disposed by 3DBNZ or the authorized service company (unless the current legislation states it otherwise).
3. 3DBNZ or the authorized service company, depending on which handles the claim, bears the shipping costs, if needed.
4. 3DBNZ or the authorized service company, depending on which handles the claim, bears the repair, parts replacement or product substitution costs.
5. All damaged, defective or replaced parts or Products become the property of 3DBNZ or the authorized service company.

EXCLUSIONS

This Warranty does not cover:

1. Physical damage caused by an inappropriate transport (not using the official packaging) or handling (including unlimitedly the damages caused by sharp or cutting elements, bending or compressing parts or fall of the product).
2. The normal wear and tear occurred for the product normal use, including unlimitedly the wear of moving parts, control panels or elements interacting with the product operation.
3. Malfunctions or damage caused by modifications, alterations or repairs by any individual or company not authorized by 3DBNZ. The Consumable replacements are excluded of this point.
4. Damage caused by power grid failures.
5. Damage caused by abuse, misuse, accidents or neglect using the Product.
6. Resulting damages of exposing the Product to floods, fire, humidity, spillage of food or chemicals, corrosion, oxidation, extreme weather conditions or any other external agent.
7. Damages caused by the use of software non recommended by 3DBNZ.

8. Damages caused by the use of printing materials non recommended by 3DBNZ.
9. The components considered as Consumables, listed in the annexed document.

LIMITATIONS AND DISCLAIMERS

This Warranty is the end user's sole and exclusive remedy against 3DBNZ and the sole and exclusive responsibility of 3DBNZ to defects in their products.

Therefore, this Warranty supersedes any other warranties issued by 3DBNZ, either oral or written in any form.

However, this Warranty does not limit either the consumer user rights specified in the legislation nor the the rights against the seller, also defined in the legislation.

3DBNZ waives all liability for any loss of businesses, loss of contracts, loss of benefits, loss of savings, increase of costs or expenses due to the use of any of its Products. Likewise, 3DBNZ refuses any indirect, incidental, collateral damage by the use of its.

NON EU WARRANTY

3DBNZ grants this Warranty to the ATLAS Technologies brand product users.

This Warranty is only valid in the country where the product has been purchased originally, as long as it is not member of the European Union, Iceland, Norway, Switzerland, Liechtenstein or Turkey. Otherwise, check the Warranty for EU countries.

WARRANTY PERIOD

The Warranty Period starts when the Product is first delivered to the end-user.

The Warranty period lasts twelve (12) months. Both the parts that suffer wear and tear due to the normal operation of the Product and the "Consumable" elements are not covered by this Warranty.

The present Warranty is invalidated in case of incurring in any of the cases exposed in the Exclusions chapter.

In case of resale, repair or substitution of the Products the Warranty is not extended. The repaired or substituted parts are covered until the end of the Warranty Period or during six (6) months, depending on which date is later.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you.

HOW TO GET WARRANTY SERVICE

In case of issues with the Product:

1. Notify the seller before the end of the Warranty Period
2. Supply all the information to 3DBNZ or to the authorized service company about the nature of the claim in the period of two (2) months since its detection and never after the end of the Warranty Period.
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8. Damages caused by the use of printing materials non recommended by 3DBNZ.
9. The components considered as Consumables, listed in the annexed document.

Some states do not allow the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

LIMITATIONS AND DISCLAIMERS

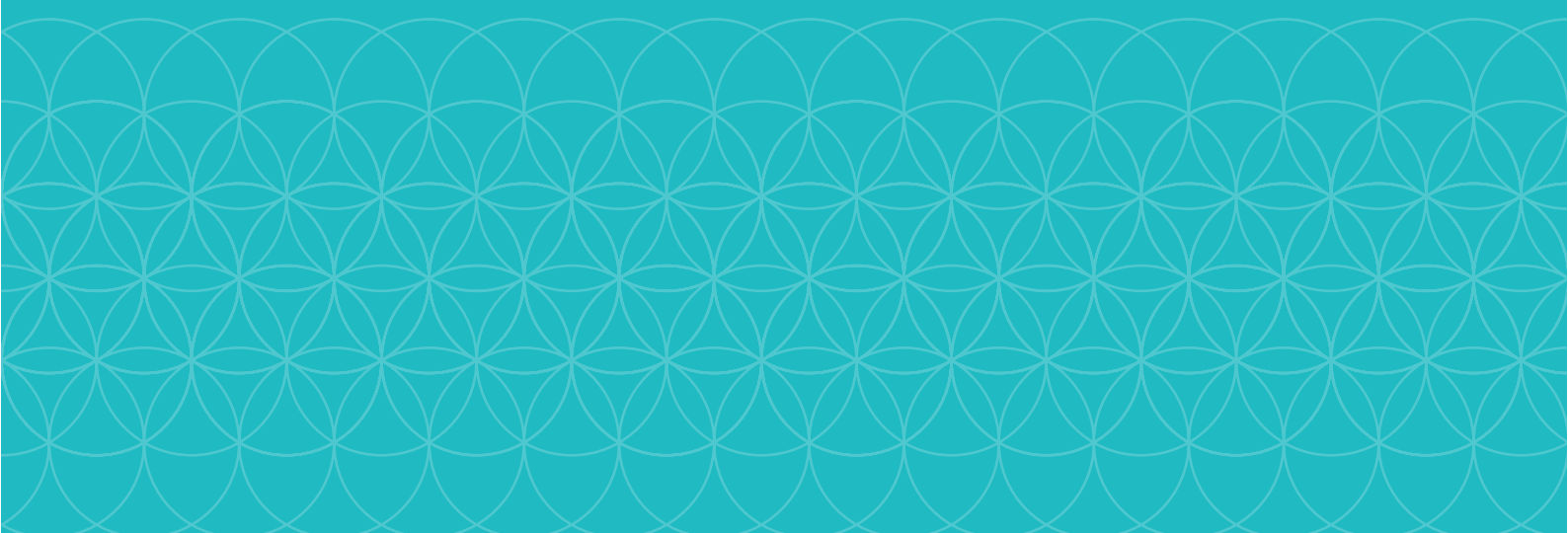
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However, this Warranty does not limit either the consumer user rights specified in the legislation nor the the rights against the seller, also defined in the legislation.

3DBNZ waives all liability for any loss of businesses, loss of contracts, loss of benefits, loss of savings, increase of costs or expenses due to the use of any of its Products. Likewise, 3DBNZ refuses any indirect, incidental, collateral damage by the use of its Products.

Thank you,
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