

# Allevi Gcode Documentation

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## Warning

This document contains information on how to use gcode to control various settings of your Allevi printer. Misuse may damage your printer.

If you have any questions, please email the Allevi Customer Success Team at [support@allevi3d.com](mailto:support@allevi3d.com).

Note: The A1, A2, and A3 columns show availability for the Allevi 1, Allevi 2, and Allevi 3, respectively.

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## G commands

G commands control movement and settings that relate to movement and positioning. These commands can be used in gcode files or directly input through the Advanced section in the Allevi Bioprint Online software.

Command	Command Description	Example	Example Description	A1	A2	A3
G0 X{float} Y{float} Z{float} F{float}	Linear movement to position (X, Y, Z) at feedrate F	G0 X4 Y5 Z6	Move to X value of 4, Y value of 5, and Z value of 6	Yes	Yes	Yes
G1 X{float} Y{float} Z{float} F{float}	Same as G0 in standard code	G1 X4 Y5 Z6 F120	Move to X value of 4, Y value of 5, and Z value of 6 at feedrate of 120mm/min	Yes	Yes	Yes
G1 E{float}	Move extruders up and down	G1 T0 E0, G1 E999	Move T0 down, retract active extruder	No	Yes	Yes
G2 X{float} Y{float}	Move in a clockwise arc to position x, y	G2 X0 Y0	Move in a clockwise arc to position X, Y	Yes	No	Yes
G3 X{float} Y{float}	Move in a counterclockwise arc to position x,y	G3 X0 Y0	Move in a counterclockwise arc to position X, Y	Yes	No	Yes
G4 P{float} G4 S{float}	Dwell for time specified	G4 S2.0	Dwell for two seconds	Yes	Yes	Yes
G28	Home axis	G28 X0 Y0	Home X and Y axis	Yes	Yes	Yes
G31	Retract extruders	G31	Retract all extruders except active	No	Yes	Yes
G90	Absolute position mode	G90	Sets G commands to go to the positions X, Y, and Z	Yes	Yes	Yes
G91	Relative position mode	G91	Sets G commands to increment positions by distances X, Y, and Z	Yes	Yes	Yes
G92 X{float} Y{float} Z{float}	Set position	G92 X0 Y0 Z0	Set position of active extruder to position X, Y, and Z, and translates positions of other extruders accordingly	Yes	Yes	Yes
G93	Set individual position	G93 X0 Y0 Z0	Set position of active extruder to position X, Y, and Z, not affecting other extruders	Yes	Yes	Yes

## M commands

M commands are used to set variables, individual settings, or control individual pins of a 3D printer (temperature, lights, acceleration, etc.). These commands can be used in gcode files or directly input through the Advanced section in the Allevi Bioprint Online software.

Command	Command Description	Example	Example Description	A1	A2	A3
M1 (also M25)	Pause	M1	Turns on yellow lights, pauses print queue on printer side, print movement sent to motion board continues as normal	Yes	Yes	Yes
M24	Resume	M24	Resumes print from paused state	Yes	Yes	Yes
M18	Turn off motors	M18	Turn off all stepper motors	Yes	Yes	Yes
M42	Activate/Deactivate pin	M42 L0 S255, M42 P17 S0,	Turn on UV LED to full power, turn off extrusion to T1	Yes	Yes	Yes
M104 T{int} S{float}	Set extruder temperature	M104 T1 S4, M104 S0	Set extruder 1 temp to 4C, turn off active extruder	Yes	Yes	Yes
M106 T{int}	Extrude	M106	Turn on extrusion for active extruder	Yes	Yes	Yes
M107 T{int}	Stop extrude	M107	Turn off extrusion for active extruder	Yes	Yes	Yes
M109 T{int} S{float}	Wait for temperature	M109 T0 S100	Set Extruder 1 temp to 100C and wait to reach that point	Yes	No	Yes
M140 S{float}	Set bed temperature	M140 S60	Set heated bed temperature to 60C	No	No	Yes
M150 R{int} G{int} B{int}	Set enclosure lights	R255 G240 B100	Set RGB values to 255, 240, 100 (stage light setting)	Yes	No	Yes
M428	Set current Z height as user Z offset	M428	Set current Z height as user z offset	Yes	No	Yes

## C commands

C commands are custom commands, similar to M commands, but have no direct analog to other standard printers (i.e. autocalibration, Pressure Control). These commands can be used in gcode files or directly input through the Advanced section in the Allevi Bioprint Online software.

Command	Command Description	Example	Example Description	A1	A2	A3
C1 S{float}	Set Pressure	C1 S100	Set Pressure of Active Extruder to 100 PSI	Yes	Yes	Yes
C100 T{int} W{int}	Move to well center	C100 T1 W0	Move to petri dish center	Yes	Yes	Yes
C101 T{int} W{int}	Change well plate	C101 T6 W0	Set well to Well 1 of 6 well plate	Yes	Yes	Yes

## P commands

P commands are printing commands for calibrating extruder positions and setting crosslinking variables. These commands can be used in gcode files or directly input through the Advanced section in the Allevi Bioprint Online software.

Command	Command Description	Example	Example Description	A1	A2	A3
P2 L{int} S{int} D{int} F{int}	During Print Crosslinking Parameters   L = type, S = intensity, D = duration, F = layer frequency	P2 L0 S100 D3 F2	Set crosslinking to UV, 100% intensity, 3 second duration, every other layer	Yes	Yes	Yes
P3	Post Print Crosslinking Parameters	P3 L1 S50 D4	After printer, blue light crosslink at 50% intensity for 4 seconds	Yes	Yes	Yes
P4 S{0 or 1}	Autocalibration	P4, P4 S1	Autocalibrate with homing routines if gantry not located, autocalibrate starting from plunge operation	Yes	No	Yes
P5	Manual Calibration	P5	Set current extruder position to 0 0 0 and calibrated to true	Yes	Yes	Yes
P6	Autocalibrate All Active Extruders	P6	Autocalibrate all Active Extruders	No	No	Yes
P7	Autocalibrate all uncalibrated extruders	P7	Autocalibrate all uncalibrated extruders	No	No	Yes