

# LERDGE

## Gcode list

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This version of the gcode list is based on the V3.0.5 firmware test of the Lerdge-X and Lerdge-K motherboards. It may be different from the Gcode feature in earlier versions of the firmware. No further comparison here. Please make sure that the motherboard firmware version is V3.0.5 when using this Gcode file. if there's any errors or objections to the Gcode description or function during use. Please send an email to [support@lerdge.com](mailto:support@lerdge.com). Thank you for so much concern

Lerdge Team

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# Gcode

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# G0/G1 (Liner move)

## Description

Used to add a linear move road to the move buffer area

## Usage

G<0 | 1> [F<rate>] [X<pos>] [Y<pos>] [Z<pos>] [E<pos>] [R]

## Parameters

[F<rate>] mm/min | inch/min      The maximum movement rate of the move between the start and end point. The feedrate set here applies to subsequent moves that omit this parameter

[X<pos>] mm | inch                  A coordinate on the X axis

[Y<pos>] mm | inch                  A coordinate on the Y axis

[Z<pos>] mm | inch                  A coordinate on the Z axis

[E<位 pos>] mm | inch              The length of filament to feed into the extruder between the start and end point

[R]                                      This flag represents the use of relative coordinates to move.

## Respond

ok\r\n

## Notes

none

## Examples

G0 X10.000 Y10.000 F3000 ; Move the printing hot head to coordinates (10.000, 10.000) at a speed of 3000mm/min

G1 Z5.000 E3.000 F1500; Move the printing hot head at 1500mm/min to 5.000 Z axis coordinates and 3.000 E axis coordinates.

G0 X-5.000 F2400 R ; Move the printing hot head 5 mm at a speed of 2400 mm/min along the direction of decreasing X-axis

G1 Y6.000 R ; Move the printing hot head 6 mm along the direction of increasing Y axis at a speed of 2400 mm/min.

# G2/G3 (Arc move)

## Description

G2 is used to perform a clockwise arc movement

G3 is used to perform a counterclockwise arc movement

## Usage

G<2 | 3> [F<rate>] [X<pos>] [Y<pos>] [Z<pos>] [E<pos>] [I<pos>] [J<offset>] [R <radius>]

## Parameters

[F<speed>]	mm/min   inch/min	The maximum rate of the move between the start and end point
[X<pos>]	mm   inch	A coordinate on the X axis
[Y<pos>]	mm   inch	A coordinate on the Y axis
[Z<pos>]	mm   inch	A coordinate on the Z axis
[E<pos>]	mm   inch	The amount to extrude between the start point and end point
[R <radius>]	mm   inch	A radius from the current XY position to use as the arc center
[I<pos>]	mm   inch	An offset from the current X position to use as the arc center
[J<pos>]	mm   inch	An offset from the current Y position to use as the arc center

## 应答 Respond

ok\r\n

error: G2/G3 bad parameters\r\n

## Notes

none

## Examples

G2 I10 J5 ; The current coordinate is offset by 10 in the positive direction of the X axis. The position shifted by 5 in the positive direction of the Y-axis is a circle. Perform an arc motion clockwise. Return to the current position after completion

G3 I-10 J5 ; Offset by 10 in the negative direction of the X axis with the current coordinates. The position shifted by 5 in the positive direction of the Y-axis is a circle. Perform an arc motion counterclockwise. Return to the current position after completion.

G2 X20 Y13 R20; A circular arc with a radius of 20 moves clockwise from the current coordinate position to the coordinate position of (20, 13)

G3 X137 Y68 R25; A circular arc with a radius of 25 moves counterclockwise from the current coordinate position to the coordinate position of (137, 68)

# G4 (Dwell)

## Description

used to pause the command queue and wait for a while

## Usage

G4 [P<time>] [S<time>]

## Parameters

[P<time>] ms waiting time Amount of time to pause command queue

[S<time>] s waiting time Amount of time to pause command queue

## Respond

ok\r\n

## Notes

If the command includes both S and P parameters, the S parameter is taken as the command.

The G4 command with no parameters has the same function as the M400 command.

## Examples

G4 P500 ; Suspend 500 ms after executing the current command

G4 S2 ; Suspend 2S after executing the current command

G4 P500 S2 ; 2S after executing the current command

G4 ; Waiting for execution to complete the current command



# G10 (Retract)

## Description

used to retract the filament

## Usage

G10 [F<speed>] [S<length>] [Z<uplift>]

## Parameters

[F<speed>] mm/min | inch/min E axis running speed when retract filament.

[S<length>] mm | inch E axis retract length

[Z<uplift>] mm | inch Z axis uplift when the E axis is retract filament.

## Respond

ok\n\n

## Notes

If there are no Parameters in the command. The system is executed according to the parameters set by the previous M207 command. If M207 Set is not executed, draw back Parameters. It is executed according to the parameters set by the software pullback in the system Sets.

## Examples

G10 Execute the pullback action according to the pullback length and speed in the system software pullback Set

M207 F1800 S30 ; Set the speed of software back-drawing is 1800 mm/min and the length of back-drawing is 30 mm

G10 ; The material of 30mm length is withdrawn at the speed of 1800mm/min according to M207 code

G10 F1200 S50 ; The material of 50mm length is drawn back according to the speed of 1200mm/min.

# G11 (Software pumping recovery)

## Description

used to recover filament

## Usage

G11 [f<speed>] [S<length>] [Z<drop>]

## Parameters

[F<speed>] mm/min | inch/min Running speed of E-axis when recover filament

[L<length>] mm | inch Run length of E-axis when recover filament

[Z<drop>] mm | inch Z axis drop when the E axis is recover filament.

## Respond

ok\r\n

## Notes

If there are no Parameters in the command. The system is executed according to the parameters set by the previous M208 command. If M208 Set is not executed, draw back Parameters. It is executed according to the parameters set by the software pullback in the system Sets.

## Examples

G11 ; Perform the feeding action according to the refueling length and refueling speed in the system refueling setting

M208 F1800 S30 ; Set the software reload speed to 1800mm/min and the heavy load length to 30mm

G11 ; Feed 30mm length material according to the feed speed of 1800mm/min set by M208 code

G11 F1200 S50 ; Feed 50mm length material at a feed speed of 1200mm/min

## G20 (Set unit - inch)

### Description

Set units to inches. In this mode, all positions, offsets, rates, accelerations, etc., specified in G-code parameters are interpreted as inches

### Usage

G20

### Parameters

无

### Respond

ok\n

### Notes

The default unit of the system is millimeter. Set the inch unit through G20 is only valid before the system is restarted or shut down. After the print file is completed or stopped, when print file is executed. The system will automatically set the unit to millimeter.

### Examples

G20

## G21 (Set unit - mm)

### Description

Set units to millimeters. In this mode, all positions, offsets, rates, accelerations, etc., specified in GCode parameters are interpreted as millimeters.

### Usage

G21

### Parameters

无

none

### Respond

ok\r\n

### Notes

System units will be forced to be set to millimetres at system startup

### Examples

G21

# G28 (Homing)

## Description

Auto-home one or more axes.

## Usage

G28 [X] [Y] [Z]

## Parameters

[X] Flag to go back to the X axis origin

[Y] Flag to go back to the Y axis origin

[Z] Flag to go back to the Z axis origin

## Respond

ok\n

## Notes

None

## Examples

G28 ; The system performs all axis homing and the E axis is set to 0.000.

G28 XY ; Performing the homing of the X and Y axes separately home to

G28 Z ; Perform the homing of the Z axis separately.

# G29 (Auto leveling)

## Description

G29 is used to perform automatic detection of print platform plane

## Usage

G29

## Parameters

none

## Respond

ok\r\n

## Notes

None

## Examples

G29

# G30 (Single Z Probe)

## Description

Do a single Z probe at a specified position. By default probe in the current position.

## Usage

```
G30 [X<pos>] [Y<pos>] [P< frequency>]
```

## Parameters

[X<pos>] mm | inch X probe position

[Y<pos>] mm | inch Y probe position

[P< frequency>] The number of repetitions when performing Z-axis detection

## Respond

echo: Starts probing the Z-axis coordinates of the ([X<pos>],[Y<pos>]) position, Repeat the number of detections: [P<次数>]\r\n

echo: ([X<pos>],[Y<pos>]) position of the Z-axis coordinates are:result\r\n

ok\r\n

## Notes

## Examples

```
G30 X10.000 Y30.000 P5; Detecting Z axis value for 5 times in (10,30) position.
```

```
G30 ;Detecting once Z-axis value at the current location
```

## G31 (Open servo)

### Descriptio

Used to move the servo arm to opening angle

### Usage

G31

### Parameters

none

### Respond

ok\r\n

### Notes

The open angle of the servo angle can be set by M866 or M401

### Examples

G31



## G32 (Closed servo)

### Description

Set the angle at which the steering arm swings to the stowed position

### Usage

G32

### Parameters

无

### Respond

ok\n

### Notes

The open angle of the servo angle can be set by M866 or M401

### Examples

G32

---

## G33 (Delta Auto Calibration)

### Description

Automatic measurement of equivalent radius and print height for delta structures

### Usage

G33

### Parameters

无

### Respond

ok\n

### Notes

Please note that when using the G33 command to detect the equivalent radius and print height, the probe with offset cannot be used. Otherwise, the detected data is wrong. We recommend using a pressure film switch set on the print head for detection.

### Examples

G33

---

# G39 (Set the Z-axis fine-tuning value)

## Description

Set the fine-tuning value of Z-axis

## Usage

G39 [S<value>] [R]

## Parameters

[S<value>] Holistic compensation value of Z axis

[R] Set mode of value

## Respond

ok\r\n

## Notes

The Z-axis holistic fine-tuning value set by G39 acts on the entire Z-axis plane. When moving each point will compensate the set value in the Z-axis direction.

+: Compensating in the direction of increasing Z-axis

-: Compensating in the direction of decreasing Z-axis

When the [R] tag was included in the command. The Z-axis fine-tuning value was added to the value set by the [S<value>] parameter.

## Examples

G39 S0.3; Set the holistic positive fine-tuning value 0.3mm of Z-axis.

G39 S-0.5 R; The holistic fine-tuning value is  $0.3-0.5 = -0.2$ mm

# G90 (Set Absolute Positioning)

## Description

The G90 is used to set the absolute position mode. In this mode, all coordinates are interpreted as positions in the logical coordinate space

## Usage

G90

## Parameters

None

## Respond

ok\r\n

## Notes

After using G90, the position coordinate mode of the E axis also set to the absolute coordinate mode. It can be modified using M83.

## Examples

G28

G90

G0 X10.000 Y20.000 Z32.000 F24000; After the execution of the three instructions, the print head at the coordinates (10, 20, 32)

---

# G91 (Set Relative Positioning)

## Description

G91: Set relative position mode. In this mode all coordinates are interpreted as relative to the last position.

## Usage

G91

## Parameters

无

## Respond

ok\r\n

## Notes

After using G91, the position mode of the E-axis is also set to the relative position mode. It can be modified with M82

## Examples

G28

G91

G0 X10.000 Y20.000 Z32.000 F24000; After the execution of the three instructions, the print head at the coordinates (10, 20, 32)

G0 X5.000 Y2.000 Z8.000; After the execution of the four instructions, the print head at the coordinates (15, 22, 40)

# G92 (Set position)

## Description

G92 is used to set the current position to the specified value.

## Usage

G92 [X<pos(mm)>] [Y<pos(mm)>] [Z<pos(mm)>] [E<pos(mm)>]

## Parameters

[X<pos(mm)>] New position coordinates of X-axes.

[Y<pos(mm)>] New position coordinates of Y-axes.

[Z<pos(mm)>] New position coordinates of Z-axes.

[E<pos(mm)>] New position coordinates of E-axes.

## Respond

ok\n\n

## Notes

## Examples

G92 E0 ; Set the position of E-axes to 0.

# M0 (Pause)

## Description

M0 is used to pause current printing.

## Usage

M0 [P<time>] [S<time>]

## Parameters

[P<time>] ms Duration of suspension Milliseconds

[S<time>] s Duration of suspension Second

## Respond

ok\r\n

## Notes

The M0 pause command followed the P or S parameter. Define the duration of suspension. The printhead will wait in place after all command queues have been executed. Until the set duration of suspension arrives. After that, the system continues to execute the commands after M0.

M0 pauses the command if there are no parameters at the back. The system will immediately perform a pause. And move the X and Y axes to a position 3 mm from the homing point. At the same time, the Z axis raised (The elevation set in the software withdrawal setting)

## Examples

M0 S4 ; After waiting for the command queue to complete, pause for 4 seconds in place

M0 S4 P300 ; After waiting for the command queue to complete, pause for 4 seconds in place

M0 P500 ; After the execution of the command queue is completed, the local pause is 500 milliseconds.

M0 ; Immediately perform the pause action while raising the Z axis and moving the X and Y axes to a position 3 mm from the homing point.

# M1 (Resume)

## Description

M1 is used to resume printing from a paused state

## Usage

M1

## Parameters

无

## Respond

ok\n

## Notes

The M1 instruction is only valid when the system is in the pause state.

## Examples



# M2 (Stop)

## Description

M2 is used to stop the current memory printing.

## Usage

M2 [S]

## Parameters

S Save print progress mark.

## Respond

ok\r\n

## Notes

There is an S mark after the M2 command. Meaning stops the current memory print task. And save the print progress for the next print. If there is no S mark. After the system stops printing the task the print progress won't save.

## Examples

M2

---

# M17 (Enable Motor)

## Description

Wait for moves to complete. Then start the power of the stepper motor. Keep the stepper motor disable.

## Usage

M17 [X | Y | Z | E]

## Parameters

[X | Y | Z | E] Settle the stepper motor disable the axis

## Respond

ok\r\n

## Notes

If M17 does not follow any of the settle axes. The M17 command acts on all axes.

## Examples

M17; Enable all motors

M17 X; Enable X-axis stepper motor

M17 Z E; Enable Z-axis and X-axis stepper motor

---

# M18 (Disable Motor)

## Description

Wait for the moves complete. Then turn off the power to the stepper motor. Keep the rotor of the stepper motor in a freely moving state.

## Usage

M18 [X | Y | Z | E]

## Parameters

[X | Y | Z | E] Designate the stepper motor to unlock the axis

## Respond

ok\r\n

## Notes

If the M18 does not follow any of the designated axes. M18 command acts on all axes.

## Examples

M18; Enable all stepper motors

M18 E; Enable the E-axis stepper motor

M18 X Y Z; Enable X-axis Y-axis Z-axis stepper motor

---

# M20 (Get the print file)

## Description

List the printable files in the specified directory of the SD card or USB flash drive.

## Usage

M20 [S: File Path] [U: File Path]

## Parameters

[S: File Path] Specify the folder path under the SD card

[U: File Path] Specify the folder path under the USB

## Respond

## Notes

If there is no parameter following M20. List all printable files in the root directory of all the memory that the system can recognize.

SD card file path format: S: primary folder / secondary folder / tertiary folder

USB file path format: U: primary folder / secondary folder / tertiary folder

## Examples

M20 S: ; List all printable files in the SD card directory

M20 U: ; List all printable files in the root directory of the USB flash drive

M20; List of all print files in the system may be able to identify the root directory memory

M20 S: my\_model/toy ; List all printable files in the my\_model/toy directory on the SD card

M20 U: structure\_model ; List all printable files in the structure\_model folder on the USB flash drive

# M21 (Init SD card)

## Description

M21 is used to initialize SD card or USB flash drive

## Usage

M21 [S] [U]

## Parameters

[S] Initialize SD card Identification

[U] Initialize the USB Identification

## Respond

ok\r\n

## Notes

If there is no parameter following M21. Performing initialization of all storage devices recognized by the system.

## Examples

M21 S ; Initialize SD card

M21 U ; Initialize USB

M21 ; Initialize all storage devices recognized by the system

M21 S U ; Initialize SD card and USB flash drive

---

# M22 (Release Memory)

## Description

M22 is used for software simulation to launch SD card or USB.

## Usage

M22 [S] [U]

## Parameters

[S] Release SD card

[U] Release USB

## Respond

ok\r\n

## Notes

If there is no parameter following M22. Execution of all storage devices recognized by the system

## Examples

M22 S Release SD card

M22 U Release USB

M22 Release all storage devices recognized by the system

M22 S U Release SD card and USB

---

# M23 (Select printing file)

## Description

M23 is used to select the file to be printed.

## Usage

M23 [filename.gcode]

## Parameters

[filename.gcode] The name of the file to be printed

## Respond

ok\r\n

## Notes

The M23 command only needs to provide a print file name. The system will search this file first in the root directory of the SD card. If not found. Then search the file in the USB.

## Examples

M23 lerdge\_box\_model.gcode

---

# M24 (Execute the print file)

## Description

M24 is used to start printing the file selected by M23 or resume printing in pause mode.

## Usage

M24

## Parameters

none

## Respond

ok\r\n

## Notes

If the system already in the process of printing. But in pause mode. M24 is used to end the pause state and continue printing. If the system is standby. M24 is used to start printing the files selected by M23

## Examples

M23 Lerdge\_box\_model.gcode; Find and select the Lerdge\_box\_model.gcode print file in all memory recognized by the system

M24; ; Start printing the Lerdge\_box\_model.gcode file

M0 ; ; Pause printing and remove the print head

M24; ; Stop the pause state and continue printing



---

# M25 (Pause Memory Printing)

## Description

M25 is used to immediately pause the memory printing process. During the memory printing process. Consistent with the M0 command function without parameters

## Usage

M25

## Parameters

无

## Respond

ok\n

## Notes

M25 is only used for the pause of the memory printing process. The command is invalid in other states.

## Examples

M25: The printing process is paused immediately. Raising the Z axis and move the print head to the position of each axis 3mm from the homing switch

---

## M26 (Set the correct position of printing file)

### Description

M26 is used to set the read pointer of the print file.

### Usage

M26 [S<pointer specific position>]

### Parameters

[S<pointer specific location>] specifies the location of the file read pointer in bytes

### Respond

ok\r\n

### Notes

无

### Examples

M26 S0; Set the file read pointer to the beginning of the file, which can be understood as starting the file execution.

M27

### Description

M27 prints file progress with query memory

### Usage

## M27 (Get print progress)

### Description

used to get the printing progress when memory printing.

### Usage

M27

### Parameters

无

### Response

Refer to example

### Notes

When the system receives the M27command, it returns the progress of the printed file

### Examples

M27

Echo:M27 2654654/1564894651\r\n

ok\r\n

## M31 (Get printing time)

### Description

M31 is used to search the printing time

### Usage

M31

### Parameters

None

### Respond

Refer to example

### Notes

None

### Examples

M31

Echo: 816 min,34 sec

ok

## M32 (Execute print file)

### Description

Selecting a file and starting to print a file

### Usage

M32 [The intact gcode file path]

### Parameters

[gcode file full path] specifies the full path to execute the print file

### Respond

ok\r\n

### Notes

wu

### Examples

M32 S: my\_model/toy/iron\_man.gcode; Print the iron\_man.gcode model file under the SD card toy folder

M32 U: structure\_model/lerdge\_box.gcode; Print lerdge\_box.gcode under U disk structure\_model folder

# M36 (Get the printing file name)

## Description

M36 is used to get the file name of the current print file.

## Usage

M36

## Parameters

none

## Respond

echo: No print file is executing\r\n

ok\r\n

echo: lerdge\_box\_model.gcode\r\n

ok\r\n

## Notes

noen

## Examples

M36

echo: lerdge\_box\_model.gcode\r\n

ok\r\n

# M81 (Power Off)

## Description

this command used to shutdown printer power

## Usage

M81

## Parameters

None

## Respond

ok\n

## Notes

Requires printer hardware support to enable M81 to turn off the printer's power

This command requires hardware support for the power management module to implement the function.

## Examples

M81

# M82(E Absolute)

## Description

M82 is used to independently set the E axis to absolute coordinate mode.

This command is used to override G91 and put the E axis into absolute mode independent of the other axes.

## Usage

M82

## Parameters

None

## Respond

ok\r\n

## Notes

None

## Examples

M82



# M83 (E Relative)

## Description

This command is used to override G90 and put the E axis into relative mode independent of the other axes.

## Usage

M83

## Parameters

None

## Respond

ok\r\n

## Notes

none

## Examples

M83

---

## M84 (Set motor disable timeout)

### Description

M84 is used to set the motor auto disable lock time in standby mode.

When the system does not have any operation for a period of time, the system will turn off the power of all stepper motors, This command can set the length of the time.

### Usage

M84 [S<time>]

### Parameters

[S<time>] seconds max motor no move timeout seconds

### Respond

ok\n

### Notes

The time set by this command is valid only for this power-on. After restarting, the motor timeout period is restored to 1 minute.

### Examples

M84 S120 ; The system turns off the power to all stepper motors after 2 minutes of no operation

# M87 (Auto shutdown)

## Description

M87 is used to enable or disable the function of automatically shutdown after the printing process is finished.

## Usage

M87 [S<0 | 1>]

## Parameters

[S<0 | 1>] S0: Disable the function of automatic shutdown when printing ends; S1: Enable the function of automatic shutdown when printing ends

## Respond

Refer to example

## Notes

If the M87 does not follow any parameters, it is the function of get whether the automatic shutdown after printing ends.

## Examples

M87 S1 ; Enable the function of automatic shutdown when printing ends

M87 S0 ; Disable the function of automatic shutdown when printing ends

M87;

Echo: The printer will be turned off after printing is complete CPSD: 1 ;

Ok

M87

Echo: The printer will not be turned off after printing is complete CPSD: 0; the function of automatic shutdown after printing ends is off

Ok

# M92 (Set step value)

## Description

M92 is used to set the step value of each motor.

## Usage

M92 [X<pulse>] [Y<pulse>] [Z<pulse>] [A<pulse>] [B<pulse>]

## Parameters

[X<pulse >]	pulse/mm	The number of pulses required for X stepper motor to move 1mm
[Y<pulse >]	pulse/mm	The number of pulses required for Y stepper motor to move 1mm
[Z<pulse >]	pulse/mm	The number of pulses required for Z stepper motor to move 1mm
[A<pulses>]	pulse/mm	The number of pulses required for E0 stepping motor to move 1mm
[B<pulses>]	pulse/mm	The number of pulses required for E1 stepper motor to move 1mm

## Respond

ok\n\n

## Notes

The XYZAB of this command corresponds to a stepper motor, not an axis.

## Examples

Reference configuration file

# M93 (Set motor direction)

## Description

M93 is used to set the running direction of each motor

## Usage

M93 [X<0 | 1>] [Y<0 | 1>] [Z<0 | 1>] [A<0 | 1>] [B<0 | 1>]

## Parameters

[X<0 | 1>] Relative travel direction of X stepper motor

[Y<0 | 1>] Relative travel direction of Y stepper motor

[Z<0 | 1>] Relative travel direction of Z stepper motor

[A<0 | 1>] Relative running direction of E0 stepper motor

[B<0 | 1>] Relative running direction of E1 stepper motor

## Respond

ok\n\n

## Notes

无

## Examples

Reference configuration file

# M104 (Set hothead temperature)

## Description

M104 is used to quickly set the hothead temperature

## Usage

M104 [T<0 | 1>] [S<temperature>]

## Parameters

[T<0 | 1>]            0 | 1    hothead index

[S<temperature>]   °C    hothead new target temperature

## Respond

ok\r\n

## Notes

If there is no [T<0 | 1>] parameter in the M104 command, the default Set of the currently active hothead.

## Examples

M104 T0 S210 ; set the target temperature of hothead0 to 210 ° C

M104 S210 ; set the target temperature of the currently active hothead to 210 ° C

---

# M105 (Get current temperature)

## Description

M105 is used to get system current temperature information

## Usage

M105

## Parameters

无

## Respond

Refer to example

## Notes

None

## Examples

M105

Echo: T:25.6 /210.0 B:26.3 /60.0 T0:25.6 /210.0 T1:24.8 /0.0

ok

# M106 (Enable fan)

## Description

M106 is used to set the operating power of the specified model fan.

## Usage

M106 [T<index>] [S<power>]

## Parameters

[T<index>] the model cooling fan index

[S<Power>] the speed of the fan (0~255)

## Respond

ok\r\n

## Notes

If there is no parameter after the M106 command, the system will run all model fans at full speed.

## Examples

M106; turn on all model cooling fans

M106 T1 S128; model cooling fan1 power is set to 50%



---

# M107 (Disable fan)

## Description

used to turn off the model cooling fan

## Usage

M107 [T<index>]

## Parameters

[P<index>] the model cooling fan index

## Respond

ok\r\n

## Notes

If there is no parameter after the M107 command, the system will turn off all model cooling fans.

## Examples

M107 T0 ; Turn off model cooling fan0

M107 T1; turn off model cooling fan1

M107; turn off all model cooling fans

---

## M108 (End temperature waiting)

### Description

M108 is used to end the process of temperature stabilization after Set the temperature of M109 or M190. The command only exits the waiting process and does not affect the set temperature value. The system will continue to control the temperature in the background and stabilize at the set target temperature.

### Usage

M108

### Parameters

None

### Respond

ok\r\n

### Notes

None

### Examples

M109 S210 ; set the temperature of hotprint head to 210 degrees and wait for the temperature to reach

M108 ; no longer waiting for the temperature to arrive, continue to perform subsequent work

# M109 (Set the hothead temperature and wait)

## Description

M109 is used to set the new target temperature of the hothead and wait for the target temperature to be reached and stability before continuing the subsequent commands.

## Usage

M109 [T<index>] [S<temperature>] [R<temperature>]

## Parameters

[T<index>]        0 | 1    hothead index

[S<temperature>] °C    Specify the target temperature of the hothead. When the hothead temperature is lower than the target temperature, wait for the temperature to reach

[R<temperature>] °C    Specifies the target temperature of the thermal head. When the hothead temperature is not equal to the target temperature, wait for the temperature to reach and stabilize.

## Respond

ok\r\n

## Notes

If the M109 command uses the S parameter to set a new target temperature, if the current temperature of the hothead is higher than the set temperature, the system will not wait for the hothead temperature to reach the set temperature. However, if the hothead temperature is lower than the set temperature, the system will wait for the hothead temperature to reach the target temperature and stabilize for at least 5 seconds before proceeding with the subsequent command.

## Examples

M109 S210 ; set the current active hothead temperature to 210 degrees Celsius, if the active hothead temperature is lower than 210, wait for the temperature to stabilize

M109 R210 ; Set the current active hothead temperature to 210 degrees Celsius and wait for the temperature to stabilize

M109 T1 S210 ; Set the temperature of the hothead1 to 210 degrees Celsius. If the hothead1 perature is lower than 210, wait for the temperature to stabilize.

M109 T1 R210; set hothead1 temperature to 210 degrees Celsius, and wait for temperature stability

# M112 (Emergency stop)

## Description

M112 is used to emergency stop

## Usage

M112

## Parameters

None

## Respond

ok\n

## Notes

The M112 command essentially stops all functions and resets the system immediately.

## Examples

M112

---

# M114 (Get current coordinate)

## Description

M114 is used to get current coordinate and motor step count

## Usage

M114 [L]

## Parameters

[L] specifies only the logical position coordinates in the content of the returned data

## Respond

Refer to example

## Notes

If the command contains the [L] parameter, only the returned logical coordinates data. If the command does not have the [L] parameter, the system returns the logical coordinates and the step count of each axis motor.

## Examples

M114 L

Echo: Logical X:36.548 Y:65.464 Z:2.356

Ok

M114

Echo: Logical X:36.548 Y:65.464 Z:2.356

Echo: Count X\_axis:2924 Y\_axis:5237 Z\_axis:1885

ok

# M115 (Get firmware infomation)

## Description

M115 is used to get firmware information

## Usage

M115

## Parameters

none

## Respond

## Notes

## Examples

# M119 (Get endstop status)

## Description

M119 is used to get endstop trigger status

## Usage

M119

## Parameters

None

## Respond

Refer to example

## Note

if use pluse endstop,the system aways get endstop trigger status is OPEN

## Example

M119

echo: Reporting endstop status

x\_endstop: Triggered

y\_endstop: Triggered

z\_endstop: Triggered

probe: Open

filament0: Triggered

filament1: Triggered

ok

---

# M120 (Enable endstop)

## Description

Enable the system's detection function for the endstop

## Usage

M120

## Parameters

none

## Respond

ok\r\n

## Notes

none

## Example

M120



# M121 (Disable endstop)

## Description

Disable the system's detection function for the endstop

## Usage

M121

## Parameters

none

## Respond

ok\r\n

## Notes

none

## Examples

M121

---

# M140 (Set hotbed temperature)

## Description

M140 is used to quickly set the new target temperature of the hot bed without waiting for the temperature to stabilize. The firmware will control the hot bed to reach the target temperature and keep the temperature in the background.

## Usage

M140 [S<temperature>]

## Parameters

[S<temperature>] °C hot bed new target temperature value

## Respond

ok\r\n

## Notes

none

## Examples

M140 S60 ; set the hot bed to a new target temperature of 60 degrees Celsius

# M142 (Set minimum temperature)

## Description

M142 is used to set the hot end minimum temperature value

The minimum temperature in the system is used to prevent dangerous extrusion. the system does not operate the extruder when the hotend temperature is lower than the set minimum temperature. The minimum temperature parameter of the hot bed has no practical significance

## Usage

M142 [T<index>] [S<temperature>] [B<temperature>]

## Parameters

[T<index>]        0 | 1    hotend index

[S<temperature>] °C    hotend minimum temperature value

[B<temperature>] °C    hotbed minimum temperature value and hotbed index

## Respond

ok\n\n

## Notes

none

## Examples

M142 T0 50 ; Set the minimum temperature of hotend0 to 50 degrees Celsius (When hotend0 temperature is lower than 50 degrees Celsius, hotend0 extruder will not work)

M142 B0 ; set the hotbed minimum temperature to 0 degrees Celsius

# M143 (Set maximum temperature)

## Description

M143 is used to set the maximum temperature value of the hot end. The maximum temperature is used to prevent dangerous heating. When the hot end temperature is higher than the set maximum temperature, the system will turn off the hot end power output.

## Usage

M142 [T<index>] [S<temperature>] [B<temperature>]

## Parameters

[T<index>]            0 | 1    hotend index

[S<temperature>]   °C    hotend maximum temperature value

[B<temperature>]   °C    maximum temperature of hotbed and hotbed index

## Respond

ok\r\n

## Notes

none

## Examples

M143 T0 250 ; Set the maximum temperature of the hotend0 to 250 degrees Celsius (when the head0 temperature is higher than 250 degrees Celsius, the system will turn off the hotend0 power output)

M143 B120; set the maximum temperature of the hotbed to 120 degrees Celsius

---

# M144 (Set the temperature protection threshold)

## Description

M144 is used to set the hot end temperature protection threshold.

Hotend temperature protection threshold function: When the heating block temperature is abnormal or dangerous, the system can close the hot end in time to ensure safety.

The working principle of hotend temperature protection threshold: When the hotend is heated at full power, the system will prompt and stop the hot end power output when the temperature continuously 20 seconds rise of the hot end per second is less than the set temperature protection threshold

## Usage

M142 [T<index>] [S<temperature>] [B<temperature>]

## Parameters

[T<index>]        0 | 1    hot header index, used to determine the hot number of the Set

[S<temperature>] °C    hot head temperature protection threshold

[B<temperature>] °C    hot bed temperature protection threshold

## Respond

ok\r\n

## Notes

none

## Examples

M144 T0 0.6 ; set the temperature protection threshold of hotend0 to 0.6 degrees Celsius

M142 B0.3 ; set the temperature protection threshold of the hotbed to 0.3 degrees Celsius

# M146 (Preheat)

## Description

Used to set the preheating temperature of different materials

## Usage

M146 [T<index>] [B] [P<temperature>] [A<temperature>] [C<temperature>] [Q<temperature>]

## Parameters

[T<index>] 0 | 1 hot header index

[B] Hot bed index

[P<temperature>] °C PLA preheating temperature

[A<temperature>] °C ABS preheating temperature

[C<temperature>] °C Custom material preheating temperature

[Q<temperature>] °C Fast preheating temperature

## Respond

ok\r\n

## Notes

none

## Examples

---

# M150 (Set RGB light bar color, brightness)

## Description

Used to set the RGB strip color and strip brightness

## Usage

M150 [R<value>] [U<value>] [B<value>] [S<brightness>]

## Parameters

[R<value>] Red value of RGB strip (0~255)

[U<value>] Green value of RGB strip (0~255)

[B<value>] Blue value of RGB strip (0~255)

[S<Brightness>] Light bar brightness (0~255)

## Respond

ok\r\n

## Notes

The brightness of RGB strips and monochromatic strips are controlled by [S<Brightness>]

## Examples

M150 R255 S255 ; the highest brightness is red

M150 R255 U255 S255 ; the highest brightness is yellow

---

# M190 (Set the hot bed temperature and wait)

## Description

Set the new target temperature of the hot bed and wait for the temperature to be reached target temperature before performing subsequent operations

## Usage

M190 [S<temperature>] [R<temperature>]

## Parameters

[S<temperature>] °C; set the target temperature of the hot bed, if current temperature of the hot bed is lower than the target temperature, system will wait for the temperature to reach and stabilize the target temperature.

[R<temperature>] °C; specify the target temperature of the hot bed, if current temperature of the hot bed is not equal to the target temperature, system will wait for the temperature to reach and stabilize the target temperature

## Respond

ok\n

## Notes

If the M190 command uses the S parameter to set a new target temperature, if the current temperature of the hot bed is higher than the set temperature, the system will not wait for the hot bed temperature to reach the set temperature. However, if the hot bed temperature is lower than the set temperature, the system will wait for the hot bed temperature to reach the target temperature and stabilize for at least 5 seconds before proceeding with the subsequent command.

## Example

M190 S60; set the hot bed target temperature to 60 degrees Celsius, if the current temperature of the hot bed is lower than 60, wait for the temperature to stabilize

M190 R60; set the hot bed target temperature to 60 degrees Celsius and wait for the temperature to stabilize



---

## M201 (Set the maximum acceleration)

### Description

This command used to set the maximum acceleration of each axis

### Usage

M201 [X<Acceleration>] [Y<Acceleration>] [Z<Acceleration>] [E<Acceleration>]

### Parameters

[X<Acceleration>]	mm/s <sup>2</sup>	Maximum acceleration value in the X-axis
[Y<Acceleration>]	mm/s <sup>2</sup>	Maximum acceleration value in the Y-axis
[Z<Acceleration>]	mm/s <sup>2</sup>	Maximum acceleration value in the Z-axis
[E<acceleration>]	mm/s <sup>2</sup>	Maximum acceleration value in the E-axis

### Respond

ok\r\n

### Notes

The maximum acceleration of each axis set by M201 is not used for actual motion calculation, It is used to limit the acceleration of each axis to not exceed the set value..

### Examples

M201 X3000 Y3000 Z1000 E3000 ;

# M203 (Set the limit speed)

## Description

This command used to set the limit speed of every axis

## Usage

M203 [X<speed>] [Y<speed>] [Z<speed>] [E<speed>] [P<speed>] [T<speed>]

## Parameters

[X<speed>] mm/s Sets the maximum speed value of the X axis

[Y<speed>] mm/s Sets the maximum speed value of the Y axis

[Z<speed>] mm/s Set the maximum speed value of the Z axis

[E<speed>] mm/s Set the maximum speed value of the E axis

[P<speed>] mm/s Set the minimum speed value when printing

[T<speed>] mm/s Set the minimum speed value when traveling

## Respond

ok\r\n

## Notes

None

## Examples

M203 X200 Y200 Z40 E100 P3 T3 ; Set the maximum speed of the X axis to not exceed 200mm/s, set the maximum speed of the Y axis to not exceed 200mm/s, set the maximum speed of the Z axis to not exceed 40mm/s, and set the maximum speed of the E axis to not exceed 100mm/s, set the minimum speed to not less than 3mm/s when printing, and set the minimum speed to no less than 3mm/s when traveling.

---

# M204 (Set acceleration)

## Description

This command used to set acceleration of every axis

## Usage

M204 [P<Acceleration>] [R<Acceleration>] [T<Acceleration>] [S<Acceleration>]

## Parameters

[S<Acceleration>] mm/s<sup>2</sup> Set the printing and travel acceleration at the same time

[P<Acceleration>] mm/s<sup>2</sup> Set the printing acceleration

[R<acceleration>] mm/s<sup>2</sup> Set the retract or recover acceleration

[T<Acceleration>] mm/s<sup>2</sup> Set the travel acceleration

## Respond

ok\r\n

## Notes

The acceleration value set by M204 is used for speed calculation in actual motion.

## Examples

M204 P3000 R3000 T5000 ; Set the printing acceleration to 3000 mm/s<sup>2</sup>; set travel acceleration is 5000 mm/s<sup>2</sup>; set retraction or extrusion acceleration to 3000mm/s<sup>2</sup>

M204 S3000 T3000; Set the printing acceleration and travel acceleration to 3000 mm/s<sup>2</sup>, and the withdrawal or extrusion acceleration to 3000 mm/s<sup>2</sup>

---

# M205 (Set the mutation speed)

## Description

This command used to set the mutation speed of every axis

## Usage

M205 [X<speed>] [Y<speed>] [Z<speed>] [E<speed>]

## Parameters

[X<speed>] mm/s Set the mutation speed of the X axis

[Y<speed >] mm/s Set the mutation speed of the Yaxis

[Z<speed >] mm/s Set the mutation speed of the Zaxis

[E<speed >] mm/s Set the mutation speed of the E axis

## Respond

ok\r\n

## Notes

The mutation speed means that if the running speed of the axis is lower than the set mutation speed, the commutation or speed change of this axis will be in a sudden manner instead of a process of the acceleration.

## Examples

M205 X20 Y20 Z4 E20 ; set the X-axis mutation speed to 20mm/s, the Y-axis mutation speed to 20mm/s, the Z-axis mutation speed to 4mm/s, and the E-axis mutation speed to 20mm/s.

# M206 (Set home offset)

## Description

This command used to set the home position offset or the endstop trigger error of the delta structure.

## Usage

M206 [X<offset>] [Y<offset>] [Z<offset>]

M206 [A<error>] [B<error>] [C<error>]

## Parameters

[A<error>] mm Trigger error value of DELTA structure A-column endstop

[B<error>] mm Trigger error value of DELTA structure B-column endstop

[C<error>] mm Trigger error value of DELTA structure C-column endstop

[X<offset>] mm X-axis home position offset

[Y<offset>] mm Y-axis home position offset

[Z<offset>] mm Z-axis home position offset

## 应答 Respond

ok\r\n

## 备注 Notes

无

## 示例 Examples

M206 X-2.000 Y2.000 ;设置了 X 轴归位偏移量为-2mm, Y 轴归位后的原点偏移量为 2mm

M206 X-2.000 Y2.000 ; Set the home offset after X-axis homing to -2mm, and the home offset after homing to Y-axis is 2mm

M206 A0.000 B-0.500 C0.3000; 设置 delta 机型 A 柱限位开关触发为标准值, B 柱相对于 A 柱有-0.5mm 的触发偏移, C 柱相对于 A 柱有 0.3mm 的偏移

M206 A0.000 B-0.500 C0.3000; set delta structure's A-column endstop trigger as standard value, B-column endstop has a trigger offset of -0.5mm relative to A-column endstop trigger position, C-column endstop has a trigger offset of 0.3mm relative to A-column endstop trigger position.

# M207 (Set retract parameters)

## Description

This command used to set retract parameters

## Usage

```
M207 [F<rate>] [S<length>] [Z<uplift>]
```

## Parameters

[F<rate>]	mm/min   inch/min	set extrude running speed when retract the filament
[S<length>]	mm   inch	set retract the filament length
[Z<uplift>]	mm   inch	Set the Z-axis uplift distance when retract the filament

## Respond

```
ok\n\n
```

## Notes

none

## Examples

```
M207 F3000 S3 Z0.5; 设置回抽参数.
```

```
G10;          挤出机以 50mm/s 的速度回抽 3mm 的距离, 同时 Z 轴抬升 0.5mm
```

```
M207 F3000 S3 Z0.5; set retract parameters,
```

```
G10;          The extruder retract distance of 3mm at a speed of 50mm/s, while the Z-axis is uplift by 0.5mm.
```

# M208 (Set recover parameters)

## Description

This command Used to set recover parameters

## Usage

M208 [F<rate>] [S<length>] [Z<drop>]

## Parameters

[F<rate>] mm/min | inch/min set extruder running rate when recover the filament  
[S<length>] mm | inch set the length of extruded filament when recover the filament  
[Z<drop>] mm | inch set Z axis drop distance when extruder recover the filament

## Respond

ok\n

## Notes

none

## Examples

G11; 挤出机以 50mm/s 的速度挤出 3mm 的距离，同时 Z 轴落下 0.5mm

G11; The extruder extrudes a distance of 3 mm at a speed of 50 mm/s, while the Z axis drops 0.5 mm.

---

## M210 (Set homing speed)

### Description

This command used to set homing speed

### Usage

M210 [X<speed>] [Y<speed>] [Z<speed>]

### Parameters

[X<speed>] mm/s set homing speed for X axis

[Y<speed>] mm/s set homing speed for Y axis

[Z<speed>] mm/s set homing speed for Z axis

### Respond

ok\n\n

### Notes

none

### Examples

M210 X60.000 Y60.000 Z20.000; set x axis homing speed is 60mm/s ,Y axis homing speed is 60mm/s and Z axis homing speed is 20mm/s



# M211 (Control software limit feature)

## Description

this command used to enable or disable the software limit feature

## Usage

M211 [S<1 | 0>]

## Parameters

[S<1 | 0>] Enable or disable the software limit feature

## Respond

ok\r\n

## Notes

If there is no any parameters after M211 command, this command will be used to inquire the status of the software limit,

If the S parameter is after M211 command, this command will be used to enable or disable the software limit feature.

## Examples

```
>M211 S1 ; Enable software limit feature
```

```
>M211 ; get software limit feature status
```

```
echo: software endstops : ON
```

```
x_min : 0.000 x_max : 200.000
```

```
y_min : 0.000 y_max : 200.000
```

```
z_min : 0.000 z_max : 200.000
```

```
ok
```

---

## M218 (Set offset of the second hot head)

### Description

this command used to set the offset between the second hot head relative to the first hot head

### Usage

M218 [X<distance>] [Y<distance>]

### Parameters

[X<distance>] mm Set the offset of the second thermal head relative to the first thermal head in the X-axis direction

[Y<distance>] mm Set the offset of the second thermal head relative to the first thermal head in the Y-axis direction

### Respond

ok\r\n

### Notes

None

### Examples

M218 X12.000 Y0.000 ; Set the offset of the second thermal head relative to the first thermal head in the positive direction of the X axis to be 12 mm, and there is no offset on the Y axis

M218 X0.000 Y-6.000 ; Set the offset of the second thermal head relative to the first thermal head in the negative direction of the Y axis to be 6 mm, and there is no offset on the X axis

## M219 (Set the push rod length error)

### Description

this command used to set the push rod length error of the delta machine.

### Usage

```
M219 [A<error>] [B<error>] [C<error>]
```

### Parameters

[A<error>] The length error of A column's push rod

[B<error>] The length error of B column's push rod

[C<error>] The length error of C column's push rod

### Respond

```
ok\n
```

### Notes

The length of the push rod here should be the intermediate value of the two push rods after assembly.

push rod length error amount = actual average push rod length - theoretical push rod length (system set push rod length)

### Examples

M219 A0.5 B-0.3 C-0.1; The actual length of the A-column's push rod is 0.5mm longer than the theoretical push rod length. The actual length of the B-column's push rod is 0.3mm shorter than the theoretical length, and the actual length of the C-column's push rod is 0.1mm shorter than the theoretical length,

# M220 (Set feedrate multiplier)

## 描述 Description

设置移动时的进给速度倍率，可以在打印时调整整体进给速率，

Set the feed rate multiplier when moving, you can adjust the feed rate multiplier during printing

## 用法 Usage

M220 [S<百分比>]

M220 [S<percent>]

## 参数 Parameters

[S<百分比>] 设置进给速度的倍率

[S<percent>] Set the feed rate multiplier

## 应答 Respond

ok\r\n

## 备注 Notes

命令从设置到执行将滞后 32 条运动指令

the command will lag 32 motion commands from setup to execution.

## 示例 Examples

M220 S200; 设置移动时的进给速度为 200%

M220 S200; set the moved feed rate multiplier as 200%

M220 S60; 设置移动时的进给速度为 60%

M220 S200; set the moved feed rate multiplier as 200%

---

# M221 (Set extrusion multiplier)

## Description

Set the extrusion multiplier to adjust the amount of extrusion when printing.

## Usage

M2201 [S<百分比>]

M2201 [S<percentage>]

## Parameters

[S<percent>] Set the multiplier of the extrusion

## Respond

ok\r\n

## Notes

The command will lag 32 motion instructions from setup to execution.

## 示例 Examples

M221 S200 ; set extrusion multiplier as 200%

M221 S60 ; set extrusion multiplier as 60%

---

# M250 (Control LCD backlight)

## Description

this command used to turn on or turn off LCD backlight

## Usage

M250 [S<1 | 0>]

## Parameters

[S<1 | 0>] Controls the backlight on and off of the LCD

## Respond

ok\r\n

## Notes

None

## Examples

M250 S0 ; turn off LCD backlight

M250 S1 ; turn on LCD backlight

# M280 (Move the servo arm)

## Description

this command used to move the servo arm to the specified angle

## Usage

M280 [S<angle>]

## Parameters

[S<angle>] Degree Set the running angle of the servo arm

## Respond

ok\r\n

## Notes

None

## Examples

M280 S60; run the steering gear arm to 60°

# M300 (Beep)

## Description

This command used to make a buzzer sound

## Usage

M300 [P<time>]

## Parameters

[P<time>] ms Set the buzzer beep time

## Respond

ok\r\n

## Notes

None

## Examples

M300 P500; buzzer sounds 500ms



---

# M301 (Set the hot head PID)

## Description

this command used set the hothead PID parameters

## Usage

```
M301 [T<index>] [P<coefficient>] [I<coefficient>] [D<coefficient>]
```

## Parameters

[T<index>] Hot head index number <0 | 1>

[P<coefficient>] scale coefficient

[I<coefficient>] integral coefficient

[D<coefficient>] differential coefficient

## Respond

```
ok\r\n
```

## Notes

None

## Examples

```
M301 T0 P189.674 I6.902 D1556.137
```

# M303 (PID auto-tuning)

## Description

this command used to prform PID auto-tuning

## Usage

M303 [T<index>] [B] [S<temperature>] [C<cycle>] [P<power>] [U]

## Parameters

[T<index>] hot end index  
[B] Hot bed logo  
[S<temperature>] °C tuning temperature value  
[C<cycle>] tuning number of tuning cycles  
[P<power>] % The upper limit of power output when tuning (10%~100%)  
[U] Save the logo

## Respond

Echo: Kp: result Ki: result Kd: value \r\n  
ok\r\n

## Notes

无 None

## Examples

M303 T0 S200 C7 U; Tuning the PID parameters of the P0 hotend at 200 degrees Celsius and 7 cycles, then save the parameters after the tuning is completed.

M303 B S80 C7 U; Tuning the PID parameters of the hotbed at 80 degrees Celsius and 7 cycles, then save the parameters after the tuning is completed.

---

## M304 (Set hotbed PID)

### Description

this command used to set hotbed PID parameter

### Usage

```
M304 [P<coefficient>] [I<coefficient>] [D<coefficient>]
```

### Parameters

[P<coefficient>] scale coefficient

[I<coefficient>] integral coefficient

[D<coefficient>] differential coefficient

### Respond

```
ok\n\n
```

### Notess

None

### Examples

```
M304 P898.249 I13.969 D14440.253
```

---

# M322 (Clear auto leveling data)

## Description

This command used to clear auto leveling data

## Usage

M322

## Parameters

无 None

## Respond

ok\r\n

## Notes

None

## Examples

M322 ; Clear all detection data of auto leveling

## M323 (Clear Z-axis fine-tuning data)

### Description

This command used to clear Z-axis fine-tuning data

### Usage

M323

### Parameters

None

### Respond

ok\n

### Notes

None

### Examples

M323 ; Clear up Z-axis fine-tuning data

# M400 (Finish moving)

## Description

this command used to waiting for all movements in the queue to be completed

## Usage

M400

## Parameters

None

## Respond

ok\r\n

## Notes

None

## Examples

Turn off the printer power after waiting for the print head to move to the coordinates (50, 60)

```
G0 X50.000 Y60.000 F18000
```

```
M400
```

```
M81
```

# M401 (Open the servo arm)

## Description

this command used to move the servo arm to opening angle

## Usage

M401

## Parameters

None

## Respond

ok\r\n

## Notes

Open angle can be set by the command of M8666 Axxx

## Examples

M401

---

# M402 (Close the servo arm)

## Description

this command used to move the servo arm to the closing angle

## Usage

M402

## Parameters

无 None

## Respond

ok\r\n

## Notes

关闭角度可以通过 M866 Bxxx 命令设置

Closing angle can be set by the command of M866 Bxxx

## 示例 Examples

M402



---

# M405 (Enable filament detection)

## Description

this command used to turn on the function of filament detection

## Usage

M405

## Parameters

None

## 应答 Respond

ok\n

## Notes

The default filament detection function is enabled each time the system is turned on.

## Examples

M405

---

# M406 (Disable filament detection)

## Description

this command used to disable the function of filament detection

## Usage

M406

## Parameters

无 None

## Respond

ok\n

## Notes

The default filament detection function is enabled each time the system is turned on.

## Examples

M406

# M500 (Save settings)

## Description

this command used to saving set parameters in system

## Usage

M500

## Parameters

None

## Respond

ok\r\n

## Notes

None

## Examples

M500

# M501 (Load system settings)

## Description

This command used to loading saved parameters into the system

## Usage

M501

## Parameters

None

## Respond

ok\r\n

## Notes

None

## Examples

M501

# M502 (Reset factory Settings)

## Description

this command used to reset factory settings

## Usage

M502

## Parameters

None

## Respond

ok\r\n

## Notes

None

## Examples

M502

# M701 (Load filament)

## Description

this command used to loading filament into the printhead

## Usage

M701 [E<index>] [L<length>] [F<rate>] [S<temperature>]

## Parameters

[E<index>]	0   1	The index number of the extruder
[L<length>]	mm   inch	The length of the loaded filament
[F<rate>]	mm/min   inch/min	The speed when loading filament
[S<temperature>]	°C	Wait for the temperature exceeds the minimum temperature before loading filament

## Respond

ok\n

## Notes

None

## Examples

M701 T0 L200 F3000 S210 ; After the temperature of No.0 hot end reaches or exceeds 210 degrees, it will load 200mm long filament at a speed of 50mm/s.

---

# M702 (Unload filament)

## Description

this command used to unload filament from the printhead

## Usage

M702[E<index >] [L<length>] [F<rate>] [S<minimum temperature>]

## Parameters

[E<index>] 0 | 1                    Index number of the extruder  
[L<length>] mm | inch            The length of unloading filament  
[F<rate>] mm/min | inch/min    The speed when unloading filament  
[S<temperature>] °C            The lowest temperature of the hot end before the unloading filament is actuated.

## Respond

ok\n

## Notes

None

## Examples

M702 T0 L200 F3000 S210; After the temperature of No.0 hot end reaches or exceeds 210 degrees, it will exit 200mm long filament at a speed of 50mm/s.

# M860 (Set structure parameters)

## Description

this command used to set machine structure parameters

## Usage

M860 [S<structure >] [X<value>] [Y<value>] [Z<value>] [R<value>] [H<value>] [L<value>] [A<value>] [ B<value>] [R<value>]

## Parameters

[S<structure>] 0 | 1 | 2 | 3 (0: Standard XYZ 1: Delta 2: CoreXY 3: CoreXZ)

### Standard XYZ, CoreXY, CoreXZ model parameters

[X<value>] mm Maximum movement distance in the X-axis direction

[Y<value>] mm Maximum moving distance in the Y-axis direction

[Z<value>] mm Maximum movement distance in the Z-axis direction

### Delta model parameters

[R<value>] mm print radius value

[H<value>] mm print height value

[L<value>] mm push rod length

[A<value>] mm machine structure radius

[B<value>] mm slider offset

[C<value>] mm effect head offset

## Respond

ok\r\n

## Notes

None

## Examples

Refer to the configuration file



---

# M861 (Set home position)

## Description

This command usef to set home position

## Usage

M861 [X<Position ID>> [Y<Position ID>] [Z<Position ID>]

## Parameters

[X<Position ID>] X-axis home position (-1: minimum position 1: maximum position)

[Y<Position ID>] Y-axis home position (-1: minimum position 1: maximum position)

[Z<Position ID>] Z-axis home position (-1: minimum position 1: maximum position)

## Respond

ok\r\n

## Note

none

## Example

Refer to the configuration file

---

# M862 (Set the trigger mode of endstop)

## Description

This command used to set the trigger mode of endstop

## Usage

M862 [X<0 | 1>] [Y<0 | 1>] [Z<0 | 1>]

## Parameters

[X<0 | 1>] The trigger mode of X-axis endstop (0: low level trigger 1: high level trigger)

[Y<0 | 1>] The trigger mode of Y-axis endstop (0: low level trigger 1: high level trigger)

[Z<0 | 1>] The trigger mode of Z-axis endstop (0: low level trigger 1: high level trigger)

## Respond

ok\r\n

## Notes

None

## Examples

Refer to the configuration file

---

## M864 (Set the probe function)

### Description

this command used to set probe function

### Usage

M864 [S<0 | 1>]

### Parameters

[S<0 | 1>] probe function (0: the probe is only used for detecting platform, 1: the probe is used for both detecting platform and detecting the minimum homing position of the Z-axis)

### Respond

ok\r\n

### Notes

When the Z-axis home position of the Delta model or other models is set as the maximum position, the probe cannot be set to limit the Z-axis minimum position.

### Examples

Refer to the configuration file

---

## M865 (Set the temperature sensor type)

### Description

Set the temperature sensor type

### Usage

M865 [T<index>] [S<0 | 1>]

### Parameters

[T<index>] sensor index

[S<0 | 1>] Set the sensor type (0: NTC100K 1: PT100)

### Respond

ok\r\n

### Note

This command only applies to the lerdge-K motherboard

### Example

Refer to the configuration file

# M866 (Set the parameters of auto leveling)

## Description

Set the parameters of auto leveling

## Usage

M866 [X<offset>] [Y<offset>] [Z<offset>] [A<angle>] [B<angle>] [C<angle>] [S<value>]

## Parameters

[X<offset>] mm The offset in the X-axis direction when the probe is triggered

[Y<offset>] mm The offset in the Y-axis direction when the probe is triggered

[Z<offset>] mm The offset in the Z-axis direction when the probe is triggered

[A<angle>] degree The opening angle of steering arm

[B<angle>] degree The retracting angle of steering arm

[C<angle>] Degree The reset angle of steering arm (mainly used for BLtouch reset)

[S<value>] Number of probe points for automatic leveling

## Respond

ok\r\n

## Notes

The automatic leveling point  $n < 3$ , automatic leveling function will be turned off

The number of automatic leveling points is  $n = 3$ . When G29 is executed, the system detects platform by three-points and compensates the flatness of platform by linear algorithm.

The automatic leveling points  $n > 3$ . When G29 is executed, the system detects platform by  $n * n$ -points and compensates the flatness of platform by nonlinear algorithm( $n \leq 32$ ).

## Examples

Refer to the configuration file

# M867 (Set the system language)

## Description

Set the system language

## Usage

M867 [S<0 | 1>]

## Parameters

[S<0 | 1>] Select system language (0: English 1: Chinese)

## Respond

ok\n

## Notes

None

## Examples

Refer to the configuration file

---

# M868 (Set color of system theme)

## Description

set color of the system theme

## Usage

M868 [R<value>] [V<value>] [B<value>]

## Parameters

[R<value>] The value of the red component in the color of system theme (0~255)

[V<value>] The value of the green component in the color of system theme (0~255)

[B<value>] The value of the blue component in the color of system theme (0~255)

## Respond

ok\r\n

## Notes

None

## Examples

Refer to the configuration file

---

# M869 (Set changing filament parameters)

## Description

Set the parameters of the software change filament

## Usage

M869 [S<temperature>] [F<speed>] [L<length>] [R<length>] [E<length>]

## Parameters

[S<temperature>] °C The minimum temperature for changing filament

[F<speed>] mm/min The speed for changing filament

[L<length>] mm/min The length for changing filament

[E<length>] mm The extrusion length after changing filament

[R<length>] mm The retraction length after changing filament extrusion

## Respond

ok\r\n

## Notes

When the hotend temperature is lower than the set temperature of changing filament , the system will not perform the operation of changing filament.

## Examples

Refer to the configuration file



# M872 (Set wiring mode of enstop)

## Description

set wiring mode of enstop

## Usage

M872 [X<0 | 1>] [Y<0 | 1>] [Z<0 | 1>]

## Parameters

[X<0 | 1>] The wiring mode of X-axis endstop (0: normal open wiring 1: normal closed wiring)

[Y<0 | 1>] The wiring mode of Y-axis endstop (0: normal open wiring 1: normal closed wiring)

[Z<0 | 1>] The wiring mode of Z-axis endstop (0: normal open wiring 1: normal closed wiring)

## Respond

ok\n\n

## Notes

Normal open wiring: The interface signal line of the motherboard endstop is set with a pull-down resistor. The resistance is about 40K

Normal closed wiring: The interface signal line of the motherboard endstop is set with a pull-up resistor. The resistance is about 40K.

## Examples

Refer to the configuration file

# M875 (Set the extension axis function)

## Description

Set function of the extension axis

## Usage

M875 [X<0 | 1>] [Y<0 | 1>] [Z<0 | 1>] [A<0 | 1>] [B<0 | 1>] [N]

## Parameters

[X<0 | 1>] EX synchronizes with X axis 0: Disables the endstop of the EX axis 1: Enables EX axis endstop  
[Y<0 | 1>] EX synchronizes with Y axis 0: Disables the endstop of the EX axis 1: Enables EX axis endstop  
[Z<0 | 1>] EX synchronizes with Z axis 0: Disables the endstop of the EX axis 1: Enables EX axis endstop  
[A<0 | 1>] EX synchronizes with E0 axis 0: Disables the endstop of the EX axis 1: Enables EX axis endstop  
[B<0 | 1>] EX synchronizes with E1 axis 0: Disables the endstop of the EX axis 1: Enables EX axis endstop  
[N] Disable EX axis

## Respond

ok\r\n

## Notes

This command is only available for the Lerdge-K motherboard.

This set command's the action object is the motion axis instead of the motor.

For standard XYZ models: EX axis can synchronize X axis, Y axis, Z axis, E0 axis and E1 axis

For CoreXY models: EX axis can synchronize Z axis, E0 axis and E1 axis

For CoreXZ models: EX axis can synchronize Y axis, E0 axis and E1 axis

For Delta models: EX axis can synchronize the E0 axis with the E1 axis

## Examples

Refer to the configuration file Refer to the configuration file

---

# M999 (System Reset)

## Description

用于软件复位重启系统

this command used to reset system

## Usage

M999

## Parameters

无

none

## Parameters

ok\n\n

## Notes

After executing M999, the system will restart immediately. All the print data will be lost during the printing process. If the parameters are set but not saved by M500, the set parameters will also be lost.

## Examples

```
>>M999
```

```
<<ok
```

# T0/T1

## 描述

This command is used to switch the active printhead

## 用法

T<0 | 1> [F<rate>]

## 参数

[F<rate>] mm/min | inch/min change printhead speed

## 应答

ok\n

## 备注

If there is [F<speed>] parameter in the command, the system head change process is an independent operation process. If there is no [F<speed>] parameter, the system's head change process is merged with the next road.

## 示例

T0

T1