

This is the GCode standard for the 3D20, 3D40 & 3D45 Dremel printers.

All commands start with '~', end with '\r\n'

The printer receives a command, if the command is in agreement with the protocol definition, first reply : 'CMD XXX Received.'

second reply Information related to command. The end of "ok";

EXAMPLE of command send/receive structure

Dremel Send : **M105**

Printer reply : **CMD M105 Received.**

T0: 25/220 B:25/100

ok

SIMPLE

M17 // enable stepper motor
M18 // disable stepper motor
M23 // start print
M24 // continue print
M25 // pause print
M26 // abort print
M27 // get print progress
M28 // start send file
M29 // end send file
M104 // set extruder temp
M105 // get temp
M106 // start fan
M107 // stop fan
M108 // set current extruder
M112 // stop jog
M114 // get current position
M115 // get machine info
M118 // turbo fan
M119 // get current status
M140 // set platform temp
M146 // set led color
M601 // connect
M602 // disconnect
M610 // set machine name
M611 // set machine extruder
M612 // set machine extruder distance
M650 // get machine extruder distance

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G1 // jog
G28 // homing
G90 // set coordinate as absolute mode
G91 // set coordinate as relative mode
G92 // set coordinate
```

```
M104 S280 T0",m_recv); //nozzle
M140 S100
M150 R100 // fan
M152 R100 //turbo fan
G1 E300000 F150 // E
```

DETAILED

#G code

##G1 - Linear motion

Movement to the specified coordinates use current or specified speed.

Parameters :

X: (Code, Optional) X axis coordinate, unit: mm
Y: (Code, Optional) Y axis coordinate, unit: mm
Z: (Code, Optional) Z axis coordinate, unit: mm
E: (Code, Optional) new A/B(Nozzle)coordinate, unit: mm
F: (Code, Optional) speed, unit: mm/min

example: ~G1 X10 Y20 Z30 E1.0 F3000

~G1 Y40

reply : ok

##G4 - Delay

Allow the device to pause for some time

Parameters : P: time interval, unit: ms

S: time interval, unit: s

example : ~G4 P10000

~G4 S10

reply : ok

##G90 - Use absolute coordinates

Use absolute coordinates

Parameters : None

example : ~G90

reply : ok

##G91 - Use relative coordinates

Use relative coordinates

Parameters : None

example : ~G91

reply : ok

##G92 - Set coordinate

Set coordinate for current location

Parameters :

X: (Code, Optional) X axis coordinate, unit: mm

Y: (Code, Optional) Y axis coordinate, unit: mm

Z: (Code, Optional) Z axis coordinate, unit: mm

E: (Code, Optional) new A/B(Nozzle)coordinate, unit: mm

example :

~G92 E0

~G92 X10 Y20 Z5

reply : ok

##G161 - Finding the minimum value

x,y,z axis Finding the minimum value

Parameters :

X: (Code, Optional) X axis move to the minimum coordinate

Y: (Code, Optional) Y axis move to the minimum coordinate

Z: (Code, Optional) Z axis move to the minimum coordinate

example :

~G161 X Y F2000

~G161 Z F600

##G162 - Finding the maximum value

x,y,z axis Finding the maximum value

Parameters :

X: (Code, Optional) X axis move to the maximum coordinate

Y: (Code, Optional) Y axis move to the maximum coordinate

Z: (Code, Optional) Z axis move to the maximum coordinate

example :

~G162 X Y F2000

~G162 Z F600

#M (Query command)

##M105 - Query current temperature

Query current temperature, include Nozzle and build plate.

example : send : ~M105

single nozzle reply : T0: 25/220 B:25/100

ok

double nozzles reply : T0: 25/220 T1: 25/220 B:25/100

ok

##M114 - Query current coordinate

Query current coordinate for nozzle

example : send : ~M114

reply : X:10 Y:10 Z:10 A:5 B:0

ok

##M119 - Query machine status

Query machine status,include limit switch, motion mode

example : send : ~M119

reply : Endstop: X-max: 0 Y-max: 0 Z-min: 1

MachineStatus: READY

MoveMode: READY

ok

##M112 - Stop

stop running,the buffer be clear

reply : ok

##M116 - Micro switch trigger monitoring

Query whether the micro switch is triggered

example : send : ~M116

reply (0 : no triggered ; 1 : triggered) : ok 0

##M117- Query buffer length

reply : ok 0 to 8

##M118 - Check the fan and wheel state

reply : ok FAN : 0/1 COLOR: 0/1(0:Abnormal, 1:normal)
ok FAN:1 COLOR:1 FANCIRCLE:0 COLORCIRCLE:212

##M121 - Query whether the machine is moving (G1 can use)

example :

send : ~M121
reply : ok F (F: stop ; T : running)

##M122 - Query whether the machine is moving (G162/161 can use)

example : send : ~M121
reply : ok F (F: stop ; T : running)

##M905 - Open level sounds

reply : ok

##M906 - Close level sounds

reply : ok

#M code (Buffer execution command)

##M6 - Waiting for the nozzle command

Allow the device to wait for the spray head to heat up to the set temperature

Parameters : T: choose nozzle, T0 or T1

S: (Code, Optional)wait for time, unit: s (default:600s)

example : ~M6 T0

reply : ok

##M17 - Enable all or specified motor

Enable all or specified motor

Parameters :

X: (Code, Optional) Specify X axis

Y: (Code, Optional) Specify Y axis
Z: (Code, Optional) Specify Z axis
A: (Code, Optional) Specify A axis
B: (Code, Optional) Specify B axis
E: (Code, Optional) Specify A and B axis

default:all axis

example : ~M17

reply : ok

##M18 - Disable all or specified motor

Disable all or specified motor

Parameters :

X: (Code, Optional) Specify X axis
Y: (Code, Optional) Specify Y axis
Z: (Code, Optional) Specify Z axis
A: (Code, Optional) Specify A axis
B: (Code, Optional) Specify B axis
E: (Code, Optional) Specify A and B axis

default:all axis

example : ~M18

reply : ok

###M104 - Set nozzle temperature

Set nozzle temperature

Parameters : T: choose nozzle, T0 or T1

S: set temperature, unit:Centigrade

example : ~M104 S220 T0

reply : ok

###M106 - Start-up fan

Start-up fan.

Parameters : None

example : ~M106

reply : ok

###M107 - Stop fan

Stop fan

Parameters : None

example : ~M107

reply : ok

##M142 T170- Micro switch upper (160-180)

reply : ok

##M141 T200- micro switch down(190-210)

reply : ok

##M148- Play a piece of music

Parameters : S: choose music (1-8)

example : ~M148 S1

reply : ok

##M900- Set LED brightness

Parameters : T: set brightness (0-5)

example : ~M900 T1

reply : ok

##M901- Query version number

example : ~M901

reply : ok v1.1 20150709