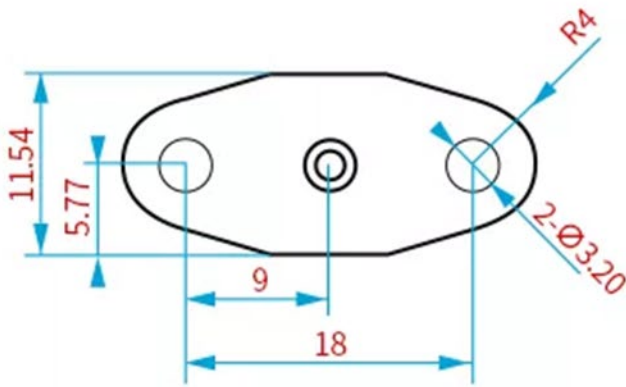
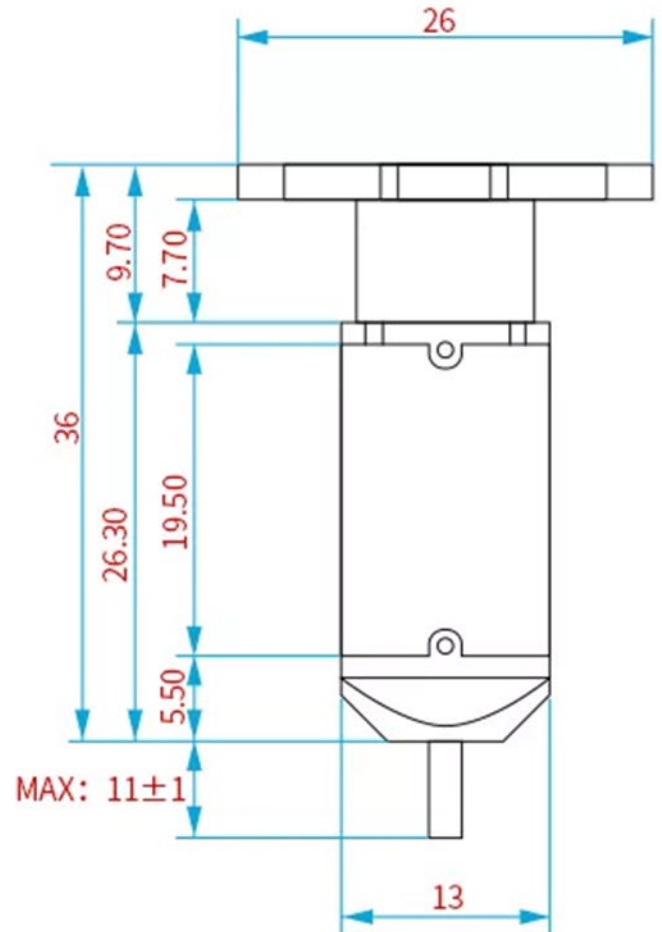


PRODUCT SIZE



UNIT: MM



**3dTouch action instruction table**

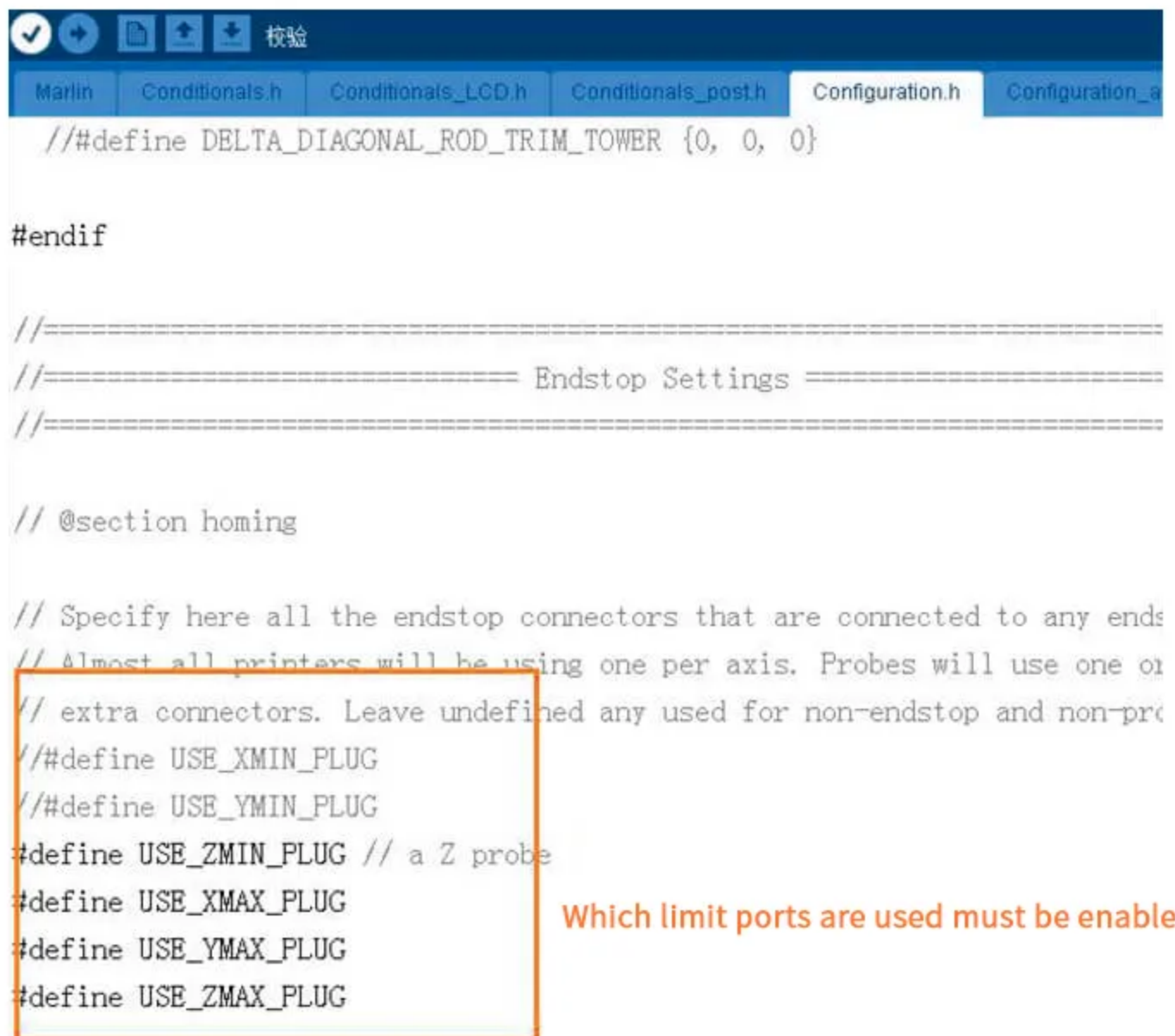
Action	G-code		
	Marlin firmware	Repetier firmware	Smoothieware firmware
Pointer	M280 P0 S10	M340 P0 S700	M280 S3.0
Suction needle	M280 P0 S90	M340 P0 S1500	M280 S7.0
Self test	M280 P0 S120	M340 P0 S1800	M280 S8.4
Contact alarm (suction needle)	M280 P0 S160	M340 P0 S2200	M280 S10.6

Firmware modification



5.1 Modification method of Marlin firmware (take Marlin 1.1.X version firmware as an example) (3pin wire is connected to D11 (note positive and negative)), 2PIN wire connected to Zmin)

- (1) Set the leveling port (Z+ or Z-), but it cannot share a pin port with the limit. Delta structure leveling can be used Zmin is used as the interface of BLtouch, and Zmax is used as the interface of the machine limit switch. 13 Structure can use Zmin As the interface of BLtouch, the BLtouch sensor is also used as the Z-axis limit sensor of the machine.



```
Marlin | Conditionals.h | Conditionals_LCD.h | Conditionals_post.h | Configuration.h | Configuration_a
// #define DELTA_DIAGONAL_ROD_TRIM_TOWER {0, 0, 0}

#endif

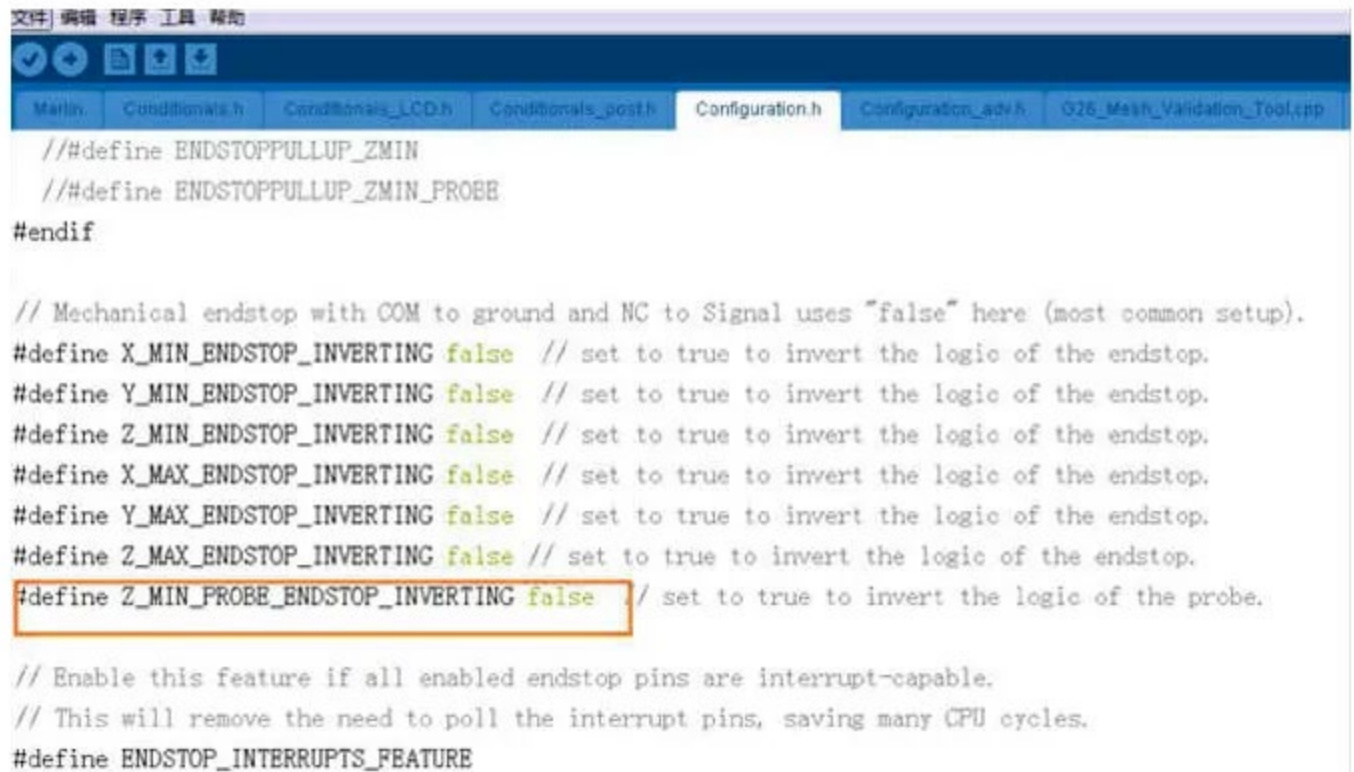
//=====
//===== Endstop Settings =====
//=====

// @section homing

// Specify here all the endstop connectors that are connected to any ends
// Almost all printers will be using one per axis. Probes will use one or
// extra connectors. Leave undefined any used for non-endstop and non-pro
// #define USE_XMIN_PLUG
// #define USE_YMIN_PLUG
#define USE_ZMIN_PLUG // a Z probe
#define USE_XMAX_PLUG
#define USE_YMAX_PLUG
#define USE_ZMAX_PLUG
```

Which limit ports are used must be enabled

(2) Set the leveling interface type



```
文件 编辑 程序 工具 帮助
Configuration.h
// #define ENDSTOPPULLUP_ZMIN
// #define ENDSTOPPULLUP_ZMIN_PROBE
#endif

// Mechanical endstop with COM to ground and NC to Signal uses "false" here (most common setup).
#define X_MIN_ENDSTOP_INVERTING false // set to true to invert the logic of the endstop.
#define Y_MIN_ENDSTOP_INVERTING false // set to true to invert the logic of the endstop.
#define Z_MIN_ENDSTOP_INVERTING false // set to true to invert the logic of the endstop.
#define X_MAX_ENDSTOP_INVERTING false // set to true to invert the logic of the endstop.
#define Y_MAX_ENDSTOP_INVERTING false // set to true to invert the logic of the endstop.
#define Z_MAX_ENDSTOP_INVERTING false // set to true to invert the logic of the endstop.
#define Z_MIN_PROBE_ENDSTOP_INVERTING false // set to true to invert the logic of the probe.

// Enable this feature if all enabled endstop pins are interrupt-capable.
// This will remove the need to poll the interrupt pins, saving many CPU cycles.
#define ENDSTOP_INTERRUPTS_FEATURE
```

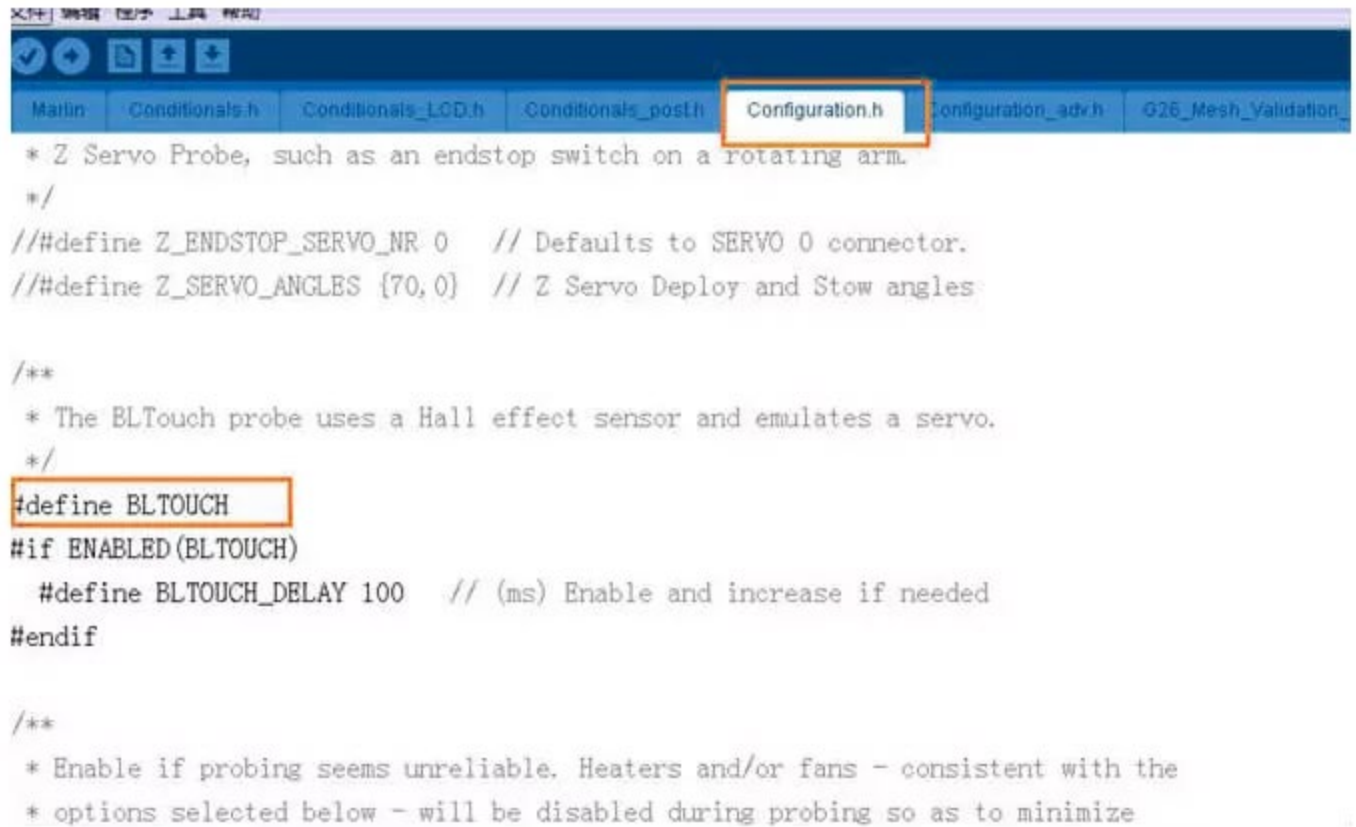
(3) Enable Z_MIN_PROBE_USES_Z_MIN_ENDSTOP_PIN



```
文件 编辑 程序 工具 帮助
Configuration.h
*/
#define Z_MIN_PROBE_USES_Z_MIN_ENDSTOP_PIN

/**
 * Z_MIN_PROBE_ENDSTOP
 *
 * Enable this option for a probe connected to any pin except Z-Min.
```

(4) Enable BLtouch leveling



```

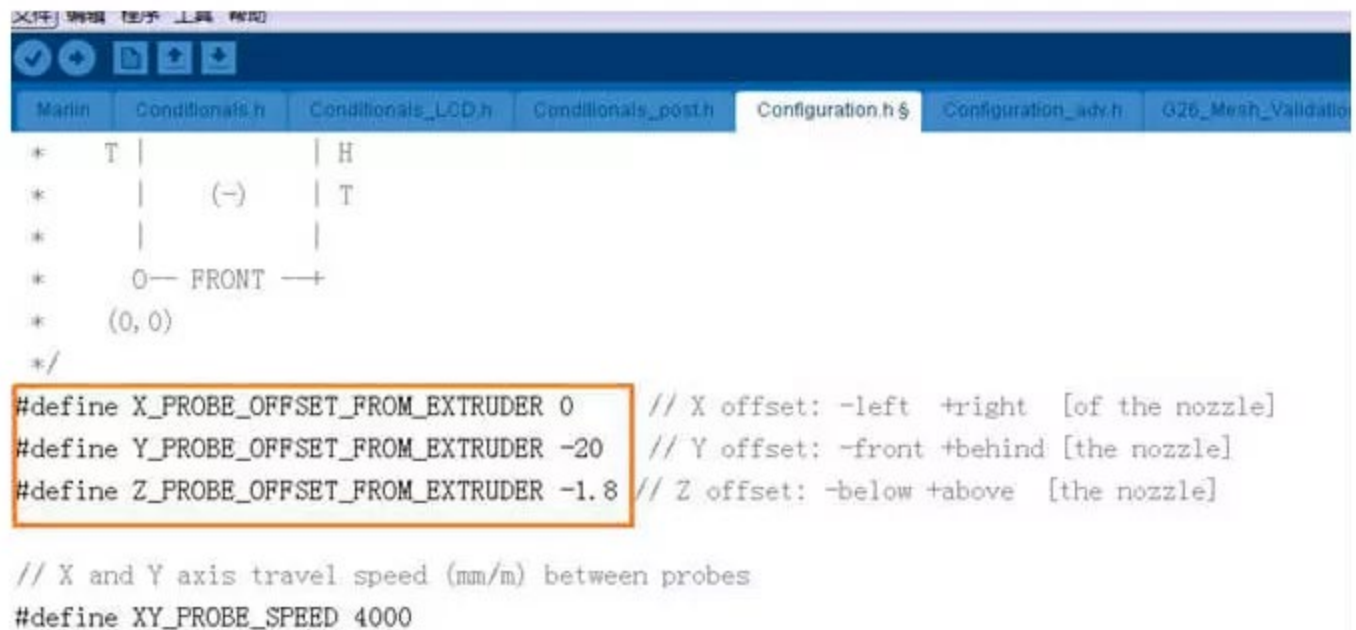
* Z Servo Probe, such as an endstop switch on a rotating arm.
*/
//#define Z_ENDSTOP_SERVO_NR 0 // Defaults to SERVO 0 connector.
//#define Z_SERVO_ANGLES {70,0} // Z Servo Deploy and Stow angles

/**
 * The BLTouch probe uses a Hall effect sensor and emulates a servo.
 */
#define BLTOUCH
#if ENABLED(BLTOUCH)
  #define BLTOUCH_DELAY 100 // (ms) Enable and increase if needed
#endif

/**
 * Enable if probing seems unreliable. Heaters and/or fans - consistent with the
 * options selected below - will be disabled during probing so as to minimize

```

(5) Set the deviation value of the leveling switch probe from the nozzle in the XYZ direction



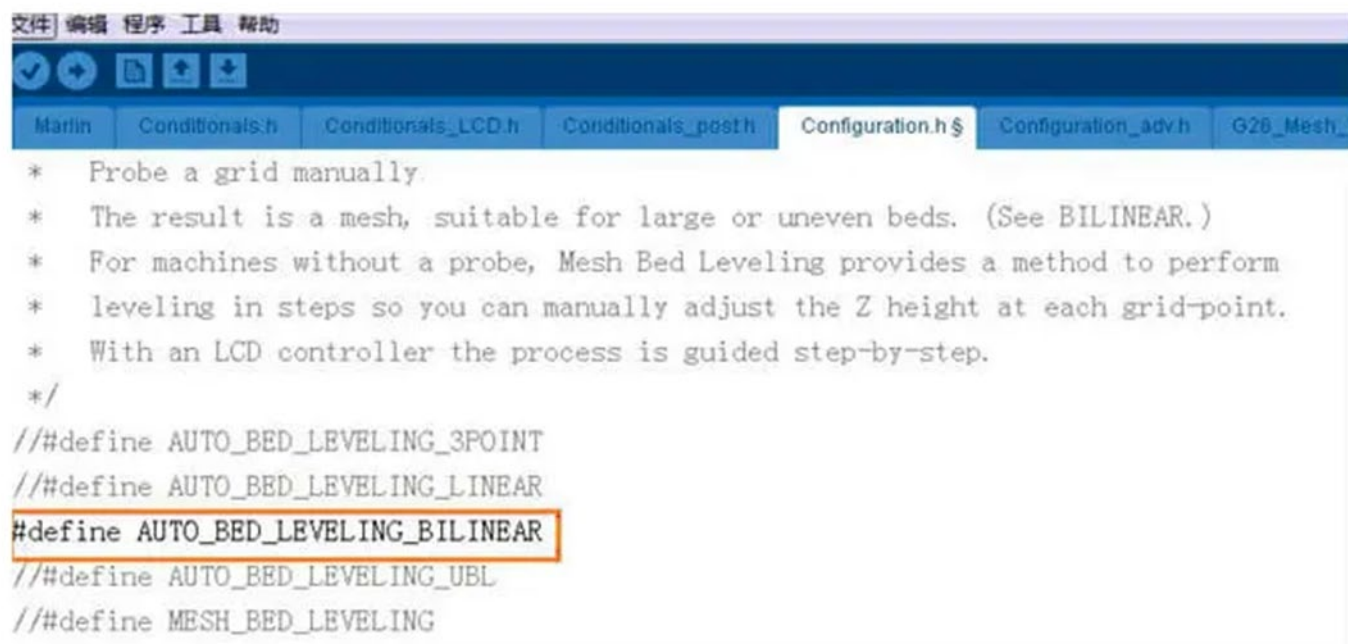
```

* T | | H
* | (-) | T
* | |
* 0— FRONT —+
* (0,0)
*/
#define X_PROBE_OFFSET_FROM_EXTRUDER 0 // X offset: -left +right [of the nozzle]
#define Y_PROBE_OFFSET_FROM_EXTRUDER -20 // Y offset: -front +behind [the nozzle]
#define Z_PROBE_OFFSET_FROM_EXTRUDER -1.8 // Z offset: -below +above [the nozzle]

// X and Y axis travel speed (mm/m) between probes
#define XY_PROBE_SPEED 4000

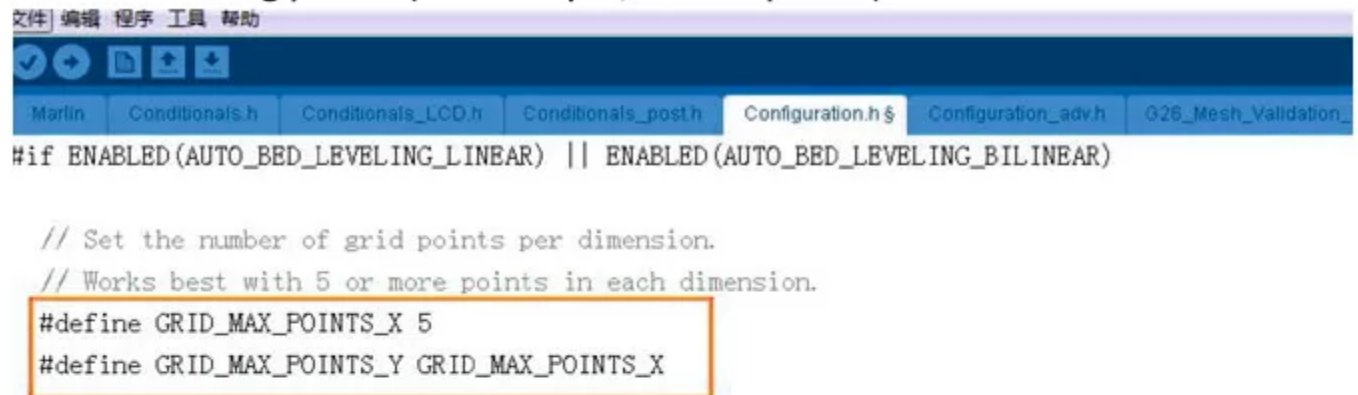
```

(6) Set the leveling method



```
文件 编辑 程序 工具 帮助
Configuration.h$
* Probe a grid manually.
* The result is a mesh, suitable for large or uneven beds. (See BILINEAR.)
* For machines without a probe, Mesh Bed Leveling provides a method to perform
* leveling in steps so you can manually adjust the Z height at each grid-point.
* With an LCD controller the process is guided step-by-step.
*/
//#define AUTO_BED_LEVELING_3POINT
//#define AUTO_BED_LEVELING_LINEAR
#define AUTO_BED_LEVELING_BILINEAR
//#define AUTO_BED_LEVELING_UBL
//#define MESH_BED_LEVELING
```

(7) Set the leveling points (for example, 5*5=25 points)

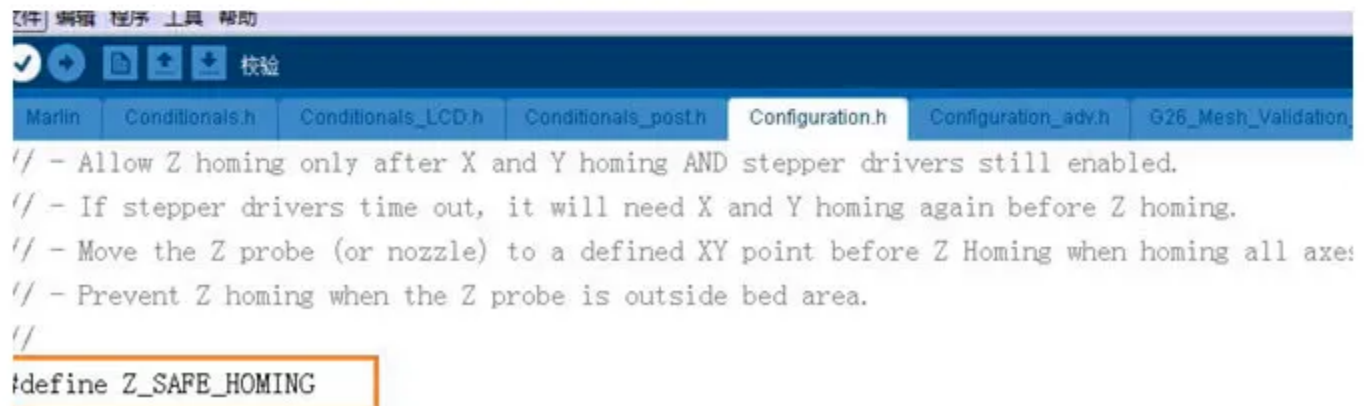


The screenshot shows the Marlin Configuration.h file in an IDE. The menu bar includes '文件', '编辑', '程序', '工具', and '帮助'. The toolbar has icons for back, forward, search, and refresh. The file tabs include 'Marlin', 'Conditionals.h', 'Conditionals_LCD.h', 'Conditionals_post.h', 'Configuration.h\$', 'Configuration_adv.h', and 'G26_Mesh_Validation...'. The code content is as follows:

```
#if ENABLED(AUTO_BED_LEVELING_LINEAR) || ENABLED(AUTO_BED_LEVELING_BILINEAR)

  // Set the number of grid points per dimension.
  // Works best with 5 or more points in each dimension.
  #define GRID_MAX_POINTS_X 5
  #define GRID_MAX_POINTS_Y GRID_MAX_POINTS_X
```

(8) Set the zero return center (you can not set it, if the machine with I3 structure uses BLtouch as the Z-axis limit sensor of the machine, This should be turned on to avoid the sensor from touching the hot bed. After the machine is turned on, the machine will move to the middle of the hot bed to perform the Z-axis zero return)

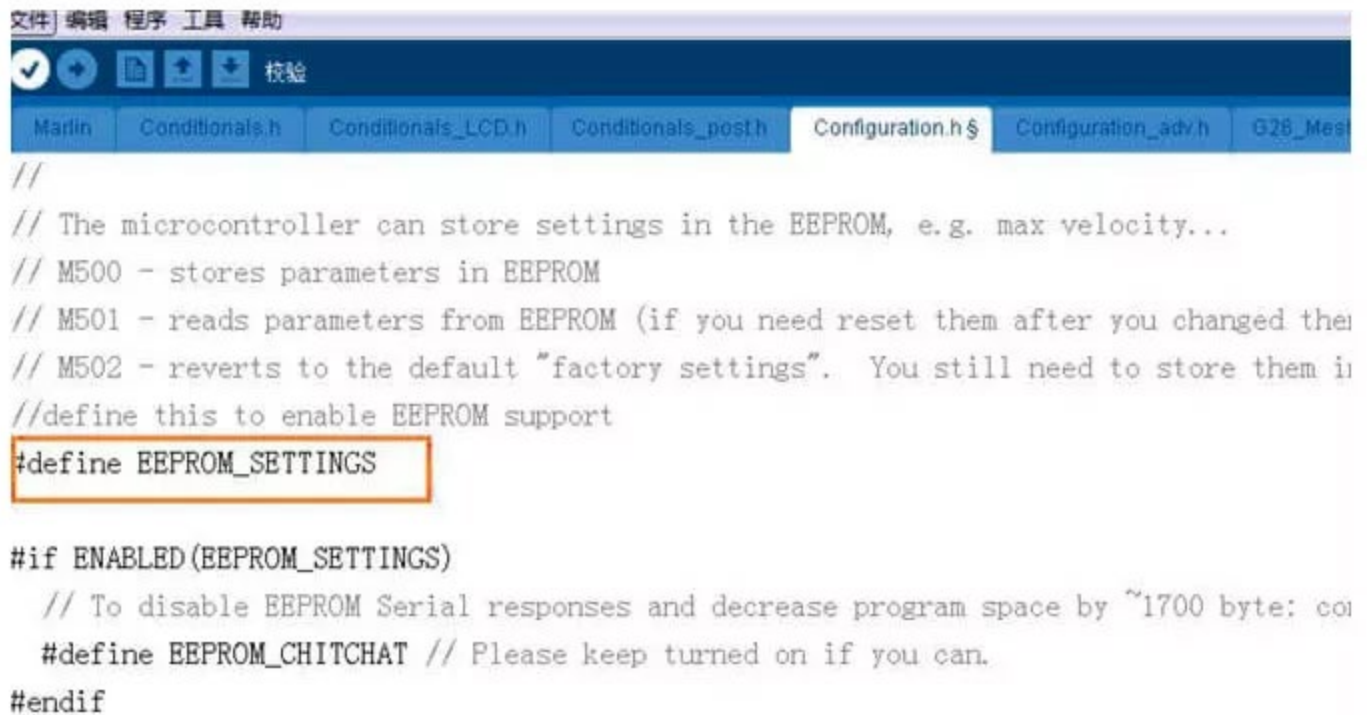


The screenshot shows the Marlin Configuration.h file in an IDE. The menu bar includes '文件', '编辑', '程序', '工具', and '帮助'. The toolbar has icons for back, forward, search, and refresh, along with the text '校验'. The file tabs include 'Marlin', 'Conditionals.h', 'Conditionals_LCD.h', 'Conditionals_post.h', 'Configuration.h', 'Configuration_adv.h', and 'G26_Mesh_Validation...'. The code content is as follows:

```
// - Allow Z homing only after X and Y homing AND stepper drivers still enabled.
// - If stepper drivers time out, it will need X and Y homing again before Z homing.
// - Move the Z probe (or nozzle) to a defined XY point before Z Homing when homing all axes
// - Prevent Z homing when the Z probe is outside bed area.
//
#define Z_SAFE_HOMING
```

(9) Save data after setting leveling

- 1) Remove the // in front of #define EEPROM_SETTINGS, turn on M500 to save data



```
文件 编辑 程序 工具 帮助
[Icons] 校验
Marlin Conditionals.h Conditionals_LCD.h Conditionals_post.h Configuration.h$ Configuration_adv.h G28_Mesh

//
// The microcontroller can store settings in the EEPROM, e.g. max velocity...
// M500 - stores parameters in EEPROM
// M501 - reads parameters from EEPROM (if you need reset them after you changed the
// M502 - reverts to the default "factory settings". You still need to store them in
//define this to enable EEPROM support
#define EEPROM_SETTINGS

#if ENABLED(EEPROM_SETTINGS)
  // To disable EEPROM Serial responses and decrease program space by ~1700 byte: co
  #define EEPROM_CHITCHAT // Please keep turned on if you can.
#endif
```

- 2) Open Marlin_main.cpp and find: add set_bedleveling_enabled(true); as follows:
case 28://G28:Home all axes,one at a time



```
文件 编辑 程序 工具 帮助
[Icons]
Marlin Conditionals.h Conditionals_LCD.h Conditionals_post.h Configuration.h Configuration_adv.h G28_Mesh_Valiation_Tonlapp M100_Fre

#if ENABLED(NOZZLE_PARK_FEATURE)
  case 27: // G27: Nozzle Park
    gcode_G27();
    break;
#endif // NOZZLE_PARK_FEATURE

case 28: // G28: Home all axes, one at a time
  gcode_G28(false);
  set_bed_leveling_enabled(true);
  break;
```

(Note: This sentence must be added, otherwise the leveling data cannot be saved)



```
// Number of servos
//
// If you select a configuration below, this will receive a default value and
// set it manually if you have more servos than extruders and wish to manually
// leaving it undefined or defining as 0 will disable the servo subsystem
// If unsure, leave commented / disabled
//
#define NUM_SERVOS 3 // Servo index starts with 0 for M280 command
```