

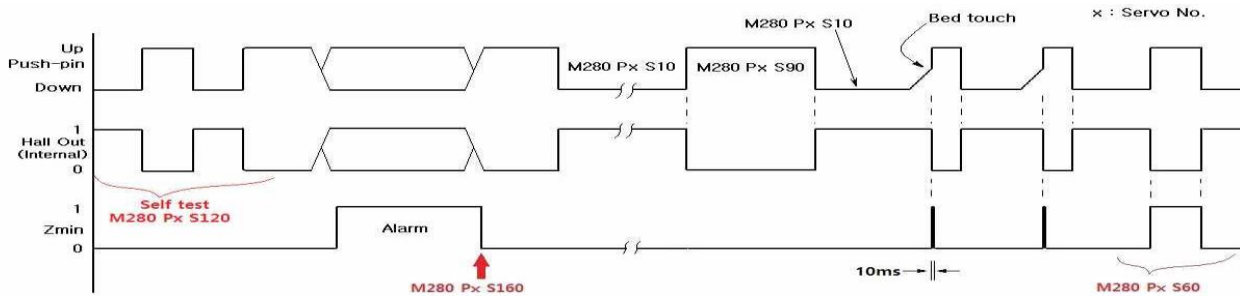
BLTouch : Auto Bed Leveling Sensor for 3D Printers

BLTouch - Smart V2.0 x : Servo Pin or No.				
BLTouch-Smart	G-code			
	Available PWM Range	Marlin Servo PWM	Repetier Servo PWM	Smoothieware
Push-pin Down 650 us (10°)	650 us (10°)	M280 Px S10	M340 Px S650 (Probe start script)	M280 S3.3
Push-pin Up 1475 us (90°)	1475 us (90°)	M280 Px S90	M340 Px S1475 (Probe finished script)	M280 S7.43
Self-test 1780 us (120°)	1780 us (120°)	M280 Px S120	M340 Px S1780	M280 S8.99
Alarm Release & Push-pin UP 2190 us (160°)	2190 us (160°)	M280 Px S160	M340 Px S2190	M280 S11.05
Alarm Release & Touch SW Mode 1165 us (60°)	1165 us (60°)	M280 Px S60	M340 Px S1165	M280 S5.88

Specification		BLTouch CAD Dimension	
Voltage(Brown-Red wire)	4.8 ~ 5.1 V		
Current	15mA		
Maximum(Peak) Current	300mA		
Z Probe Output Logic	5V / 3.3V(internal)		
Color	Semitransparent White		
SMT & Soldering	Lead Free		
Cable Length	150±5 mm		
Weight	0.35 oz (10g)		
Wiring	3Pin : Brown(-, GND) Red(+ 5V) Orange(control signal) 2Pin : Black(-, GND) White(Zmin)		

- ※ Additional power supply can be needed in case which your board does not supply enough amperage.
- ※ Electronic devices can be damaged or even destroyed if connected to the wrong side polarity.
[wrong terminal connect to 5V(+) and GND(-)]
- ※ You don't need 240Ω, 10KΩ resistor for 3.3V logic Board
- ※ The action as pulling/pushing hard the push-pin can make the BLTouch damaged and less accurate.

■ Signal Timing Diagram



<p>Correct position of Core</p> <p>(smart only) 0.6±0.3mm</p>	<p>If your board is 3.3V Logic, please following below</p> <p>Cut Here for 3.3V Logic</p>
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■ Setting (e.g. Marlin firmware)

Please refer to other auto bed leveling setting documents (Youtube or G+ , etc.).

Troubleshooting : <https://igg.me/at/BLTouch-C/ts/11834379>

Marlin 1.1.x(1.1.6) Setting

Step 1 : Copy the file below and overwrite at the Marlin folder. <== e.g. Delta
Marlin\example_configurations\delta\generic\Configuration.h
Marlin\example_configurations\delta\generic\Configuration_adv.h

Step 2 : Look at the Configuration.h at your previous firmware and edit Configuration.h at Marlin 1.1.x Step
3 : Check your 3D printer works well.

Step 4 : Please install your BLTouch.

Step 5 : Edit Configuration.h and Configuration_adv.h like below.

■ Configuration.h

```
//===== Endstop Settings ===== #define
USE_ZMIN_PLUG

//===== Z Probe Options =====
#define Z_MIN_PROBE_USES_Z_MIN_ENDSTOP_PIN
//#define Z_MIN_PROBE_ENDSTOP
//#define FIX_MOUNTED_PROBE
#define BLTOUCH
#if ENABLED(BLTOUCH)
  #define BLTOUCH_DELAY 100 // *option #endif
  #define PROBING_HEATERS_OFF // *option
  #define PROBING_FANS_OFF // *option
  #define X_PROBE_OFFSET_FROM_EXTRUDER 0 //Your BLTouch X_PROBE_OFFSET_FROM_EXTRUDE
  #define Y_PROBE_OFFSET_FROM_EXTRUDER -22 //Your BLTouch Y_PROBE_OFFSET_FROM_EXTRUDE
  #define Z_PROBE_OFFSET_FROM_EXTRUDER -1.9 //Your BLTouch Z_PROBE_OFFSET_FROM_EXTRUDE
  #define Z_CLEARANCE_DEPLOY_PROBE 15 // set up at least 15
  #define Z_CLEARANCE_BETWEEN_PROBES 10 // set up at least 10

//===== Bed Leveling =====
// Choose a line of below lines and remove // at the start of the line
//#define AUTO_BED_LEVELING_3POINT
//#define AUTO_BED_LEVELING_LINEAR
#define AUTO_BED_LEVELING_BILINEAR
//#define AUTO_BED_LEVELING_UBL
//#define MESH_BED_LEVELING

//===== Additional Features ===== #define
EEPROM_SETTINGS // Enable for M500 and M501 commands

//===== R/C SERVO support =====
#define NUM_SERVOS 3 // set up at least 1
#define SERVO_DELAY { 300, 300, 300 }
```

Previous Versions before Marlin RC7

■ Configuration.h

```
//===== Mechanical Settings ===== const
bool Z_MIN_ENDSTOP_INVERTING = false;

//===== Z Probe Options =====
//#define Z_MIN_PROBE_ENDSTOP // *RC4 ~ RC6
#define Z_MIN_PROBE_USES_Z_MIN_ENDSTOP_PIN // *RC4 ~ RC6

//===== Bed Auto Leveling ===== #define
AUTO_BED_LEVELING_FEATURE
#define X_PROBE_OFFSET_FROM_EXTRUDER 20 //Your BLTouch X_PROBE_OFFSET_FROM_EXTRUDE
#define Y_PROBE_OFFSET_FROM_EXTRUDER -20 //Your BLTouch Y_PROBE_OFFSET_FROM_EXTRUDE
#define Z_PROBE_OFFSET_FROM_EXTRUDER -1.0 //Your BLTouch Z_PROBE_OFFSET_FROM_EXTRUDE
#define Z_SAFE_HOMING

//===== R/C SERVO support ===== #define
NUM_SERVOS 3
#define SERVO_ENDSTOP_ANGLES {{0,0}, {0,0}, {10,90}} // 10=deploy, 90=retract ##define
DEACTIVATE_SERVOS_AFTER_MOVE
```

If you want more additional information about the other versions, please visit our website, www.antclabs.com