

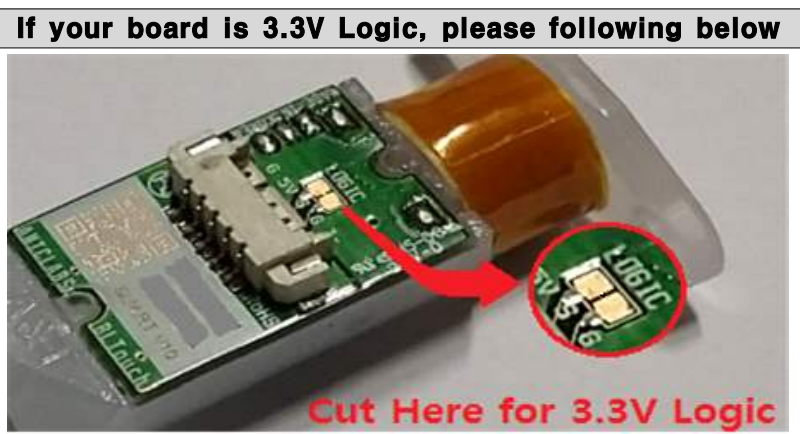
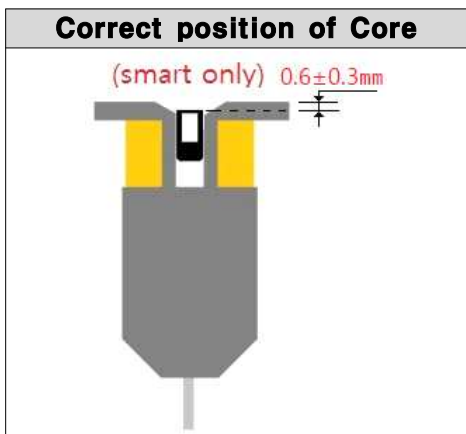
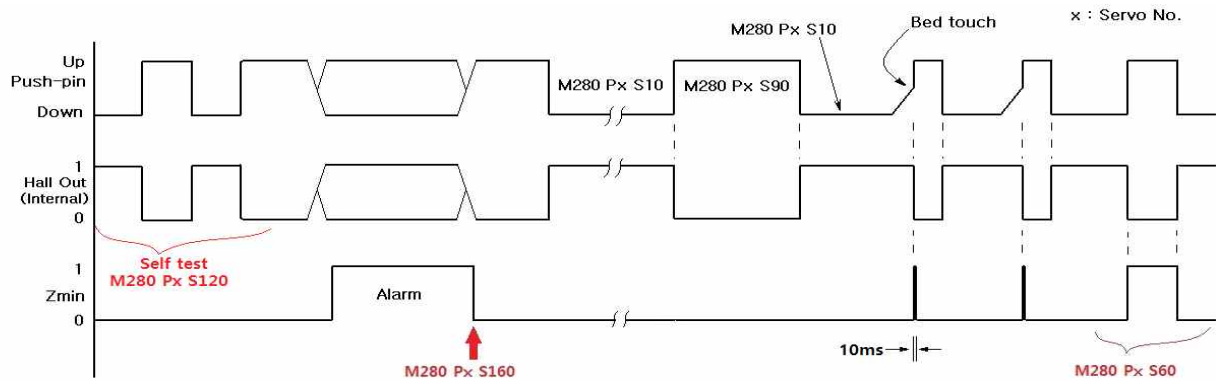
BLTouch-Smart : Auto Bed Leveling Sensor for 3D Printers

BLTouch - Smart					Servo No. : 0
BLTouch-Classic	G-code				
	Available PWM Range	Marlin Servo PWM	Repetier Servo PWM	Smoothieware	
Push-pin Down 700 us (10°)	700 us (10°)	M280 P0 S10	M340 P0 S700 (Probe start script)	M280 S3.0	
Push-pin Up 1500 us (90°)	1500 us (90°)	M280 P0 S90	M340 P0 S1500 (Probe finished script)	M280 S7.0	
Self-test 1800 us (120°)	1800 us (120°)	M280 P0 S120	M340 P0 S1800	M280 S8.4	
Alarm Release & Push-pin UP 2200 us (160°)	2100 ~ 2400 us (150° ~ 180°)	M280 P0 S160	M340 P0 S2200	M280 S10.6	
Wiring Test & Touch SW Mode 1200 us (60°)	1200 us (60°)	M280 P0 S60	M340 P0 S1200	M280 S5.5	

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(-)]
- ※ Now, **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



■ 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**
MarlinWexample_configurationsWdeltaWgenericWConfiguration.h
MarlinWexample_configurationsWdeltaWgenericWConfiguration_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