

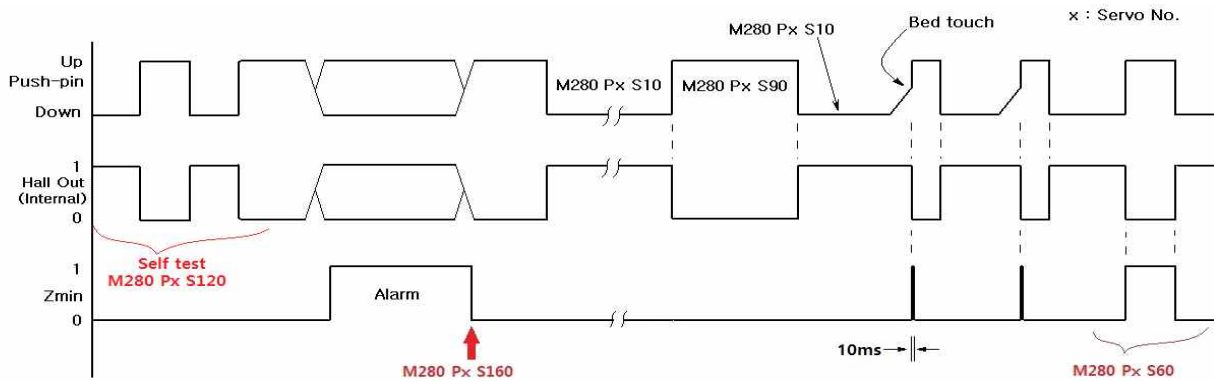
# BLTouch-Smart : Auto Bed Leveling Sensor for 3D Printers

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	
Alarm Release & 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	<b>3Pin</b> : Brown(-, GND) Red(+5V) Orange(control signal) <b>2Pin</b> : 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



Correct position of Core	If your board is 3.3V Logic, please following below
<p>(smart only) 0.3mm</p>	<p>Cut Here for 3.3V Logic</p>

## ■ 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 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

```
//===== Delta Settings (Delta only) =====
#define DELTA_HEIGHT 320 // Too much value causes nozzle and bed crushing.
#define DELTA_HOME_TO_SAFE_ZONE

//===== Endstop Settings =====
#define USE_ZMIN_PLUG // a Z probe
#define ENDSTOP_INTERRUPTS_FEATURE //option

//===== Z Probe Options =====
#define Z_MIN_PROBE_USES_Z_MIN_ENDSTOP_PIN
//#define Z_MIN_PROBE_ENDSTOP
#define BLTOUCH
#if ENABLED(BLTOUCH)
  #define BLTOUCH_DELAY 100 //375 (ms) Enable and increase if needed : *option
#endif
#define PROBING_HEATERS_OFF // Turn heaters off when probing : *option
#define PROBING_FANS_OFF // Turn fans off when probing : *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 // Z Clearance for Deploy/Stow : set up at least 5
#define Z_CLEARANCE_BETWEEN_PROBES 5 // Z Clearance between probe points : set up at least 5

//===== Bed Leveling =====
// Choose a line of below 5 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

//===== R/C SERVO support =====
#define NUM_SERVOS 3 // Servo index starts with 0 for M280 command
```

■ **Configuration\_adv.h** - To use **PROBING\_HEATERS\_OFF** and **PROBING\_FANS\_OFF** in Configuration.h

```
//===== Buffers =====
#define ADVANCED_PAUSE_FEATURE //option
* ADVANCED_PAUSE_FEATURE currently requires an LCD controller
```

If you want more additional information about the other versions, please visit our website, [www.antclabs.com](http://www.antclabs.com)