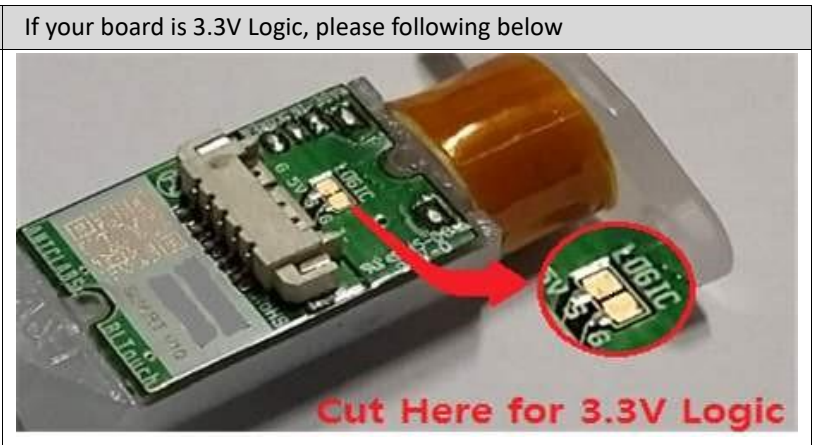
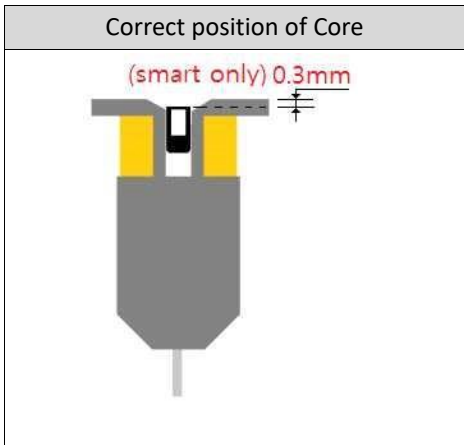
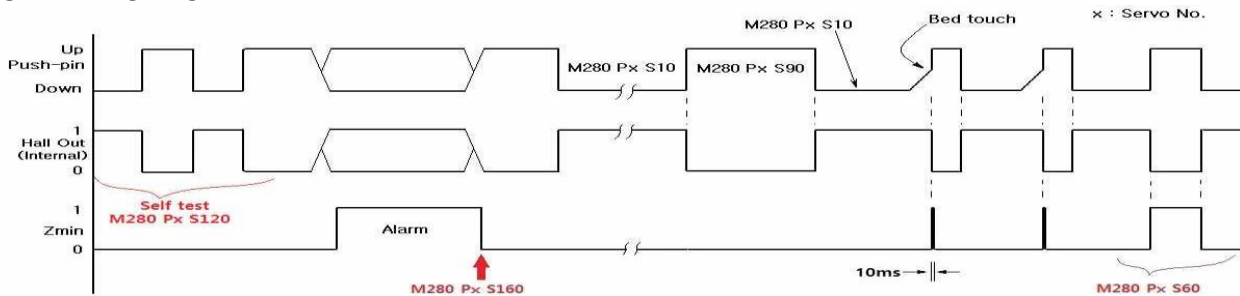


# BLTouch : Auto Bed Leveling Sensor for 3D Printers

BLTouch - Smart V1.0 <span style="float: right;">x : Servo Pin or No.</span>				
BLTouch-Smart	G-code			
	Available PWM Range	Marlin Servo PWM	Repetier Servo PWM	Smoothieware
<b>Push-pin Down</b> 650 us ( 10° )	650 us (10°)	M280 Px S10	M340 Px S650 (Probe start script )	M280 S3.3
<b>Push-pin Up</b> 1475 us ( 90° )	1475 us ( 90° )	M280 Px S90	M340 Px S1475 (Probe finished script)	M280 S7.43
<b>Self-test</b> 1780 us ( 120° )	1780 us (120°)	M280 Px S120	M340 Px S1780	M280 S8.99
<b>Alarm Release &amp; Push-pin UP</b> 2190 us ( 160° )	2190 us (160°)	M280 Px S160	M340 Px S2190	M280 S11.05
<b>Alarm Release &amp; Touch SW Mode</b> 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(-)]
- ※ 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 RC8BugFix, RC7 Cartesian, Delta configuration.h Setting
<p>Step 1 : Copy the file below and overwrite at the Marlin folder. &lt;== e.g. Delta MarlinWexample_configurationsWdeltaWgenericWConfiguration.h MarlinWexample_configurationsWdeltaWgenericWConfiguration_adv.h</p> <p>Step 2 : Look at the Configuration.h at your previous firmware and edit Configuration.h at RC8 BugFix Step 3 : Check your 3D printer works well.</p> <p>Step 4 : Please install your BLTouch.</p> <p>Step 5 : Edit Configuration.h like below.</p> <pre>//===== Endstop Settings ===== #define ENDSTOP_INTERRUPTS_FEATURE //option RC8 only  //===== Z Probe Options ===== #define BLTOUCH //remove // at the start of the line #define BLTOUCH_DELAY 375 // RC8BugFix #define BLTOUCH_HEATERS_OFF // RC8BugFix #define X_PROBE_OFFSET_FROM_EXTRUDER 0 //Your BLTouch X_PROBE_OFFSET_FROM_EXTRUDE #define Y_PROBE_OFFSET_FROM_EXTRUDER -23 //Your BLTouch Y_PROBE_OFFSET_FROM_EXTRUDE #define Z_PROBE_OFFSET_FROM_EXTRUDER -1.5 //Your BLTouch Z_PROBE_OFFSET_FROM_EXTRUDE ##define Z_MIN_PROBE_ENDSTOP //add // at the start of the line #define Z_MIN_PROBE_USES_Z_MIN_ENDSTOP_PIN //remove // at the start of the line  //===== Bed Auto Leveling ===== // Choose a line of below three lines and remove // at the start of the line ##define AUTO_BED_LEVELING_3POINT ##define AUTO_BED_LEVELING_LINEAR #define AUTO_BED_LEVELING_BILINEAR  //===== R/C SERVO support ===== #define NUM_SERVOS 3 //remove // at the start of the line</pre>
Previous Versions before RC7
<p>Before installing BLTouch, please setup your configuration.h and check if it works well with your 3D printer.</p> <pre>//===== Mechanical Settings ===== const bool Z_MIN_ENDSTOP_INVERTING = false;  //===== Z Probe Options ===== ##define Z_MIN_PROBE_ENDSTOP // add // at the start of the line *RC4 ~ RC6 #define Z_MIN_PROBE_USES_Z_MIN_ENDSTOP_PIN //remove // at the start of the line *RC4 ~ RC6  //===== Bed Auto Leveling ===== #define AUTO_BED_LEVELING_FEATURE //remove // at the start of the line #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 //remove // at the start of the line ←option  //===== R/C SERVO support ===== #define NUM_SERVOS 3 //remove // at the start of the line #define Z_ENDSTOP_SERVO_NR 0 //remove // at the start of the line #define SERVO_ENDSTOP_ANGLES {{0,0}, {0,0}, {10,90}} //remove //, 10=deploy, 90=retract ##define DEACTIVATE_SERVOS_AFTER_MOVE //Don't remove // at the start of the line</pre>

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