

# Application Note: Setting the Trip Point

## SUMMARY

This application note describes the procedure for calibrating the trip point of the circuit.

## REQUIRED

- freETarget V2.1 or higher
- Firmware V3.0 or higher
- Small Screw Driver
- Header Jumper

## INTRODUCTION

freETarget uses the sound of the projectile passing the sensors to trip a circuit and measure the time difference between the various sensor. Using the time difference the software computes the location and displays the results.

Ideally the hardware wants to detect the pellet at the moment the signal starts to appear. In practice setting the trip point close to zero would make it susceptible to false triggering from other targets. Setting the trip point too high would prevent the circuit from detecting some shots. freeETarget has a variable control that lets you adjust the trip point based on your range and shooting preferences.

## PREPARATION

The circuit is put into calibration mode by inserting the CAL jumper as shown in Figure 1.

The trip ranges are selected by adding an additional jumper to the A or B header. The ranges are shown in Table 1.

Table 1: Jumper Settings

Low	Normal	High
Jumper A	None	Jumper B

Start by setting the calibration to the NORMAL mode. Use the HIGH setting for outdoor ranges with high calibre weapons. The low setting is provided for reference only.

ADJUSTMENT

The trip point is adjustable in three ranges and 15 levels as shown in Table 2. Using the small screwdriver adjust the trim pot (Figure 2) and observe the LED indicators (Figure 3). The circuit is delivered calibrated to a trip point of roughly 600mV. Adjust upwards if you are getting false trips. Adjust downwards to improve the detection threshold.

Table 2: Trip Point Adjustment

	Low (mV)	Normal (mV)	High (mV)	RDY	X	Y
Do Not Use	233	350	525			
	267	400	600			
	300	450	675			BLINK
	333	500	750			
	367	550	825		BLINK	
Factory Setting	400	600	900			
	433	650	975		BLINK	BLINK
	467	700	1050			
	500	750	1125	BLINK		
	533	800	1200			
	600	900	1350	BLINK		BLINK
	667	1000	1500			
	733	1100	1650	BLINK	BLINK	
	800	1200	1800			
Do Not Use	867	1300	1950	BLINK	BLINK	BLINK

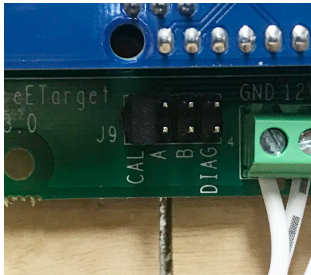


Figure 1: Calibration Jumper

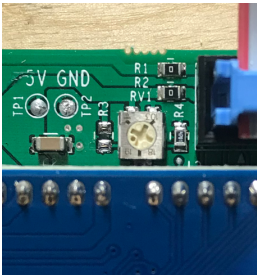


Figure 2: Adjusting Potentiometer

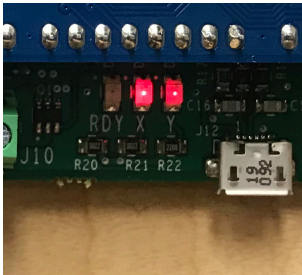


Figure 3: Indicator LEDs

## IMPORTANT

No LEDs or all blinking indicates under or over range and should not be used.

## FINISHING UP

- Record the LED settings and date

Date	S	X	Y	Reason for Change

- Remove the calibration and other jumpers
- Cycle power to the freETarget
- Verify that the LEDs return to the conventional RDY-OFF-OFF setting