Battery Voltage:

Min voltage = 3.1V – 18.6V

Max voltage = 4.2V – 25.2V

Trip under-voltage on 18.6 if discharging (3.1v per cell)

Trip over-voltage on 25.8V (4.3V per cell)

Voltage divider 4k7 / 1k -> 28.5V FSD.

|  |  |  |
| --- | --- | --- |
| Set point | Volts | ADC |
| + charge trip | 25.8 | 926.9895 |
| Fully charged | 25.2 | 905.4316 |
| -trip | 18.6 | 668.2947 |

Scale using differential amplifier with bias from +5V rail (see spreadsheet).

Count of 785 at max voltage.

Count of 145 at min voltage.

Sound

PWM period = [(PR2) + 1] • 4 • TOSC •

(TMR2 prescale value)

PWM duty cycle = (CCPR1L:CCP1CON<5:4>) •

TOSC • (TMR2 prescale value)

Note – if CCP1CON<5:4> is 0 then duty cycle = (CCPR1L\*4\*Tosc\*T2prescale)

Need CCPR1L – (PR2-1)/2

T2 prescaler 1:1, 1:4, 1:16

PR2 is 8-bit register. Input to prescaler is Fosc / 4

For audio range need T2 prescaler = 16 with 4MHz clock.

CCP1 pin needs to be set output (0 in tris) – RB2.