

Experiment # 06 (PWM)

Object:- Generate a PWM signal using the given kit of PWM and plot its modulation characteristics (τ vs V_D).

Apparatus Used :-

1. A PWM unit,
2. A pulse generator,
3. A Dual Trace CRO
4. A 5-volts DC supply and a variable DC supply (Aplab model 7711)

Observations:-

1. Specifications of the pulses used:- Amplitude = ----- Vp-p
PRR = ----- KHz, Duty Cycle = ----- %
($T = 500 \mu s$, & $\tau = 100 \mu s$)
2. Magnitude of the built-in DC voltage at modulating-signal input = ----- V DC
3. Corresponding pulse-width at PWM output = ----- μs
4. Measurements for modulation characteristics:-

S. No.	DC Volts at modulation Input (volts)	Pulse-duration at PWM output (μs)
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		

Procedure :-

1. Obtain a train of pulses from external pulse generator having $A = 4.5 V$, $f = 2 KHz$ and $\tau = 100\mu s$ and apply it at the Carrier input of the PWM unit.
2. Observe the PWM output on the CRO screen. Measure the duration of the pulses appearing on the CRO.
3. Connect a variable dc voltage (0.2 volt to 3.4 volts) obtained from an external variable dc supply at the modulating signal input of the PWM unit.
4. Note the effect of variable dc voltage on the pulse-width at the PWM output.

The modulation Characteristics of the PWM is the curve plotted between the Pulse-duration versus DC voltage.
