

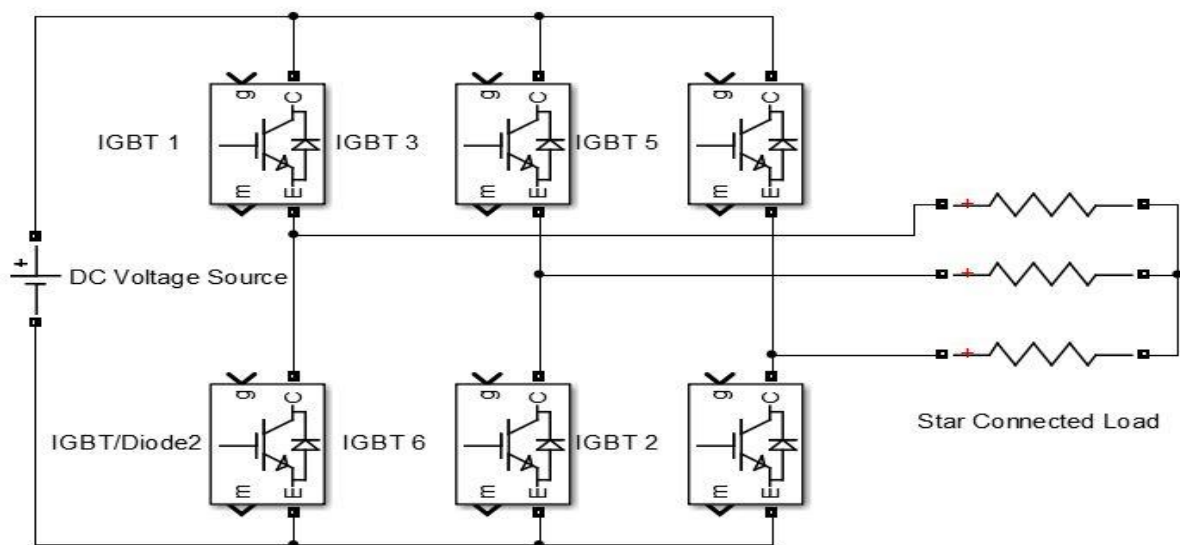
Experiment No.- 7

Objective of the Experiment: To study the three phase inverter (180°) mode with star-connected resistive load.

Equipment Needed:

1. Scientech 2700 Trainer Kit.
2. Firing Circuit unit.
3. Resistive Load.
4. Patch Cords.
5. DSO.

Circuit Diagram:



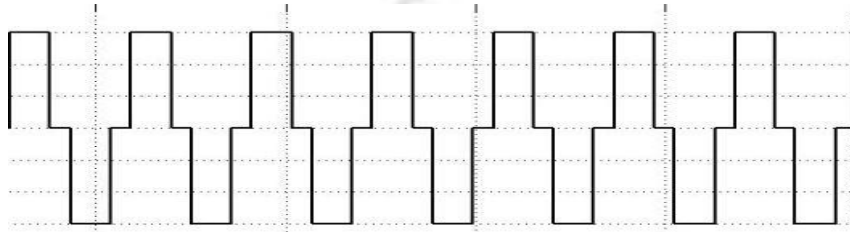
Note: Gate pulse will be given by firing circuit unit externally.

Procedure:

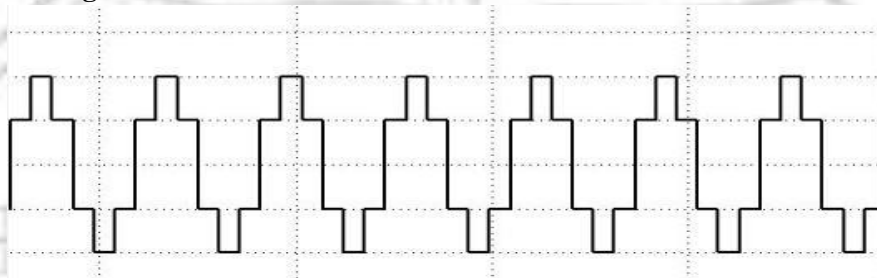
1. Make the connections as per the given circuit diagram.
2. Give the gate pulses from the firing circuit unit to the IGBT assembly carefully.
3. Connect the given resistive load in star configuration.
4. Connect the DSO probe and multi-meter to **one phase and neutral for phase voltage** and between two **phases for line voltage** across the load.
5. Make sure the connection is **OK** and patch cords are **not loose**.
6. Switch on the main supply (**DC**).
7. Switch on the firing circuit unit and DSO.
8. Take the required readings from the DSO and multi-meter.
9. Switch off the firing circuit unit and main supply after completing the experiment.
10. Calculate the desired result from the observed data.

Expected Output Waveforms:

1. Line Voltage



2. Phase Voltage:



Observation Table:

Sl No.	Frequency (Hz)	Line Voltage (V_L)				Phase Voltage (V_{ph})			
		Peak	rms cal.	rms meas.	%error	Peak	rms cal.	rms meas.	%error
1.									

Calculation:

1. For Line Voltage (rms):

$$V_L = \sqrt{\frac{2}{3}} V_S$$

2. For Phase Voltage (rms):

$$V_{Ph} = \frac{\sqrt{2} V_S}{3}$$
