

Aim:

To find the change in frequency and operating frequency of a single Area Control.

Apparatus Required:

Sl.No	Apparatus	Specification
1	PC	Dual core, RAM 512 MB 1.2 GHz speed, 80 GB
2	MATLAB	7.5

Theory:

Real or Active power control is one of the important control actions to be performed during normal operation of the system to match the system generation with the continuously changing load, in order to maintain the constancy of system frequency to a tolerable limit of $\pm 5\%$. A change in system load causes a change in the speed of all Turbine generator system, leading to change in system frequency.

Primary Control:

The speed change from synchronous speed initiates the governor control action resulting in all the participating generator- turbine units taking up the change in load, and stabilizes the system frequency.

Secondary Control:

It adjusts the load reference set points of selected turbine- generator units so as to give nominal value of frequency.

An isolated power station has the following parameters

Turbine time constant $TT=0.5$ sec

Governor time constant $TG=0.2$ sec

Generator inertia constant $H=5$ sec

Governor speed regulation $=R$ per unit

$DPL=0.2$ Using MATLAB SIMULINK obtain dynamic response of the load frequency control system with out PI controller and with PI controller assume $K_i=7$ and $K_P=20$ A the-area system connected by a tie line has the following parameters on a 1000MVA common base.

Algorithm:

Step 1: Open the Matlab Windows in PC.

Step 2: In menu option open a new Model file on file option.

Step 3: Drag the required blocks in Matlab Library to New File.

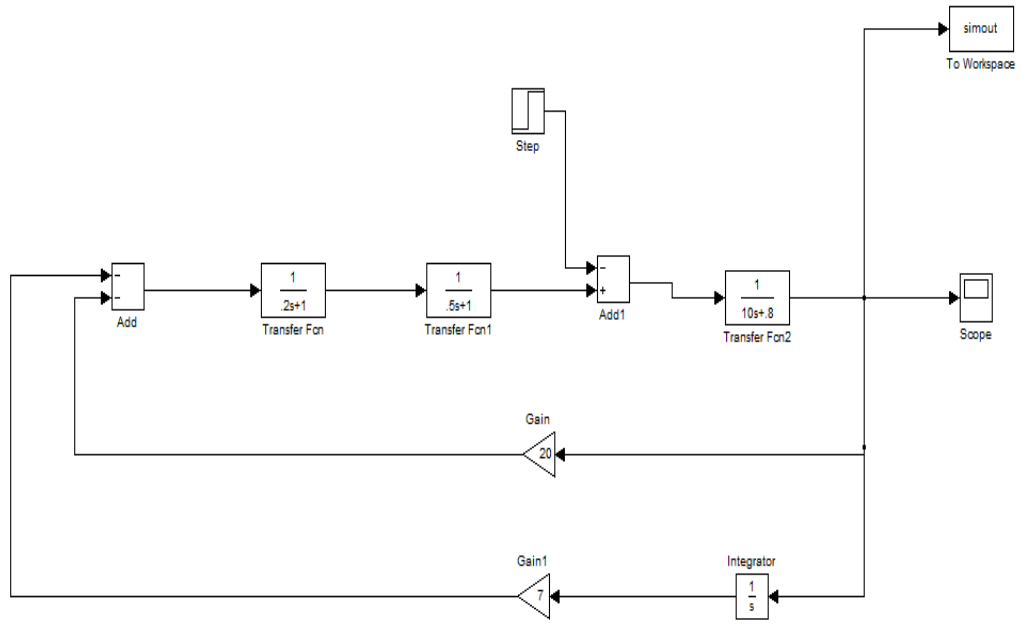
Step 4: Connect Blocks by using Connection link.

Step 5: Give appropriate Value and setting to all blocks.

Step 6: Save and Run the model.

Step 7: By clicking the scope you can see the obtained output.

Model:



Result: