

COMMUNICATIONS LAB. Design of an Experiment (Design)

OBJECTIVES

In this experiment, you are expected to design a QPSK experiment. You need to design this experiment using the QPSK modulator and demodulator available on the experiment set. You may also use the logic switches and the serializer available on the experiment set.

You should meet the following conditions for the design:

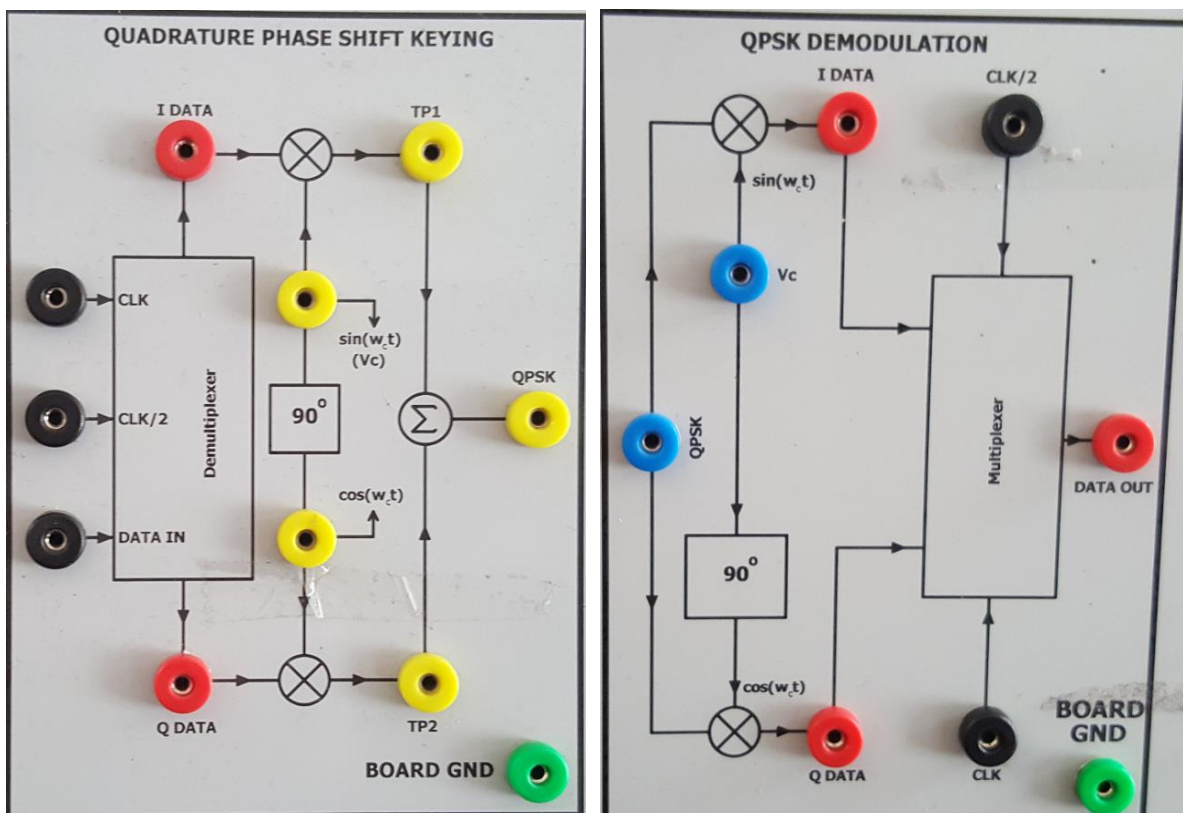
- Prepare a document for the experiment which includes “Objectives”, “General Information” and “Experiment Procedure” parts. A template is available on DYS. (max. 2 pages)
- Prepare a document for the report which includes “Notes/Comments/Drawings”, “Questions” and “Conclusion” parts. A template is available on DYS. (max. 4 pages)

The grading will be based on the documents you prepare. Therefore, it is very important to have good understanding of the available modules, their limits and good design of the experiment flow. As always, plagiarism will not be tolerated. The criteria to be considered when grading are:

- Well-defined problem statement and objectives for the experiment.
- Essential information about the experiment.
- Description of the experimental procedure that includes all the steps involved in the experiment. This description should provide enough detail about the experimental task.
- Well-prepared questions for the report.
- Presentation of the documents.

GENERAL INFORMATION ABOUT THE EXPERIMENT

Important: Before the experiment, it is important to study the theory and the hardware implementation of QPSK. The hardware implementations of the modulator and demodulator on the experiment set are shown in the figures below.



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The hardware schematics as well as the inputs and outputs are shown in the figures above. There are also various sources on the experiment set to provide input to the modulator and the demodulator. The hardware implementations of these sources (logic switches and serializer) on the experiment set are also shown in the figures below.

