

# LABS

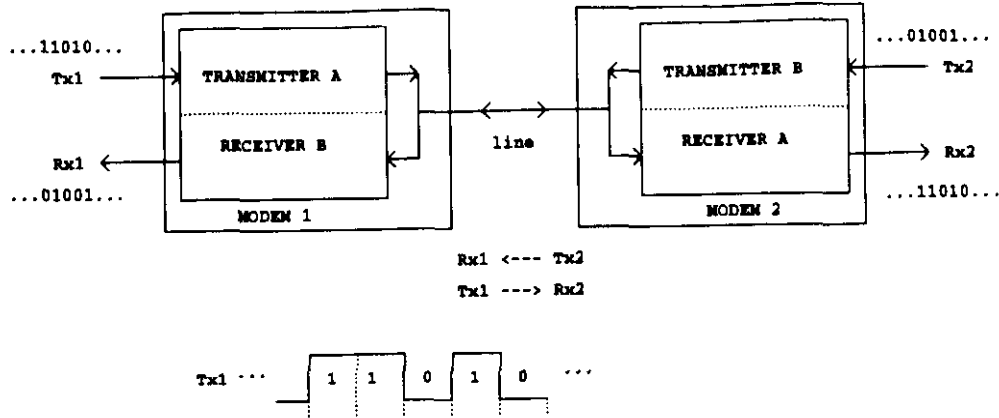


Figure 1: A block diagram of the system with two FSK modems.

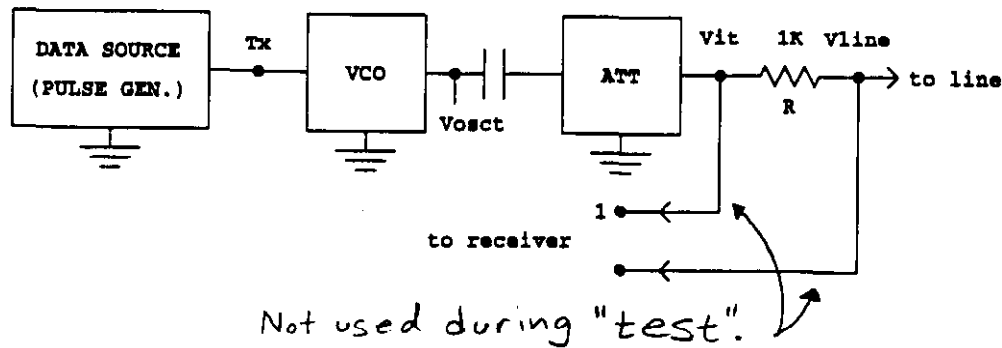


Figure 2: A block diagram of the FSK transmitter.

DATA SOURCE: Function Generator = Square Wave,  $D = .5$ ,  $f = 250\text{Hz}$ , Digital High (5V to 15V), Digital Low (-5V to -15V)

Note: Function Generator connects to a Comparator such that any Digital High becomes +15V and any Digital Low becomes  $\phi$ V.

VCO When  $T_x = 15\text{V} \Rightarrow f_{\text{osc}} = 10.5\text{KHz}$

When  $T_x = \phi\text{V} \Rightarrow f_{\text{osc}} = 9.5\text{KHz}$

Cap Remove DC component.  $\Rightarrow \pm 7.5\text{Volts}$  or  $15\text{Volts P-P}$ .

Att opamps: circuitry so  $V_{\text{it}}$  is  $\leq 1\text{Volt P-P}$ .

R  $1\text{K}\Omega$ : Standard Source Impedance.

# LAB5

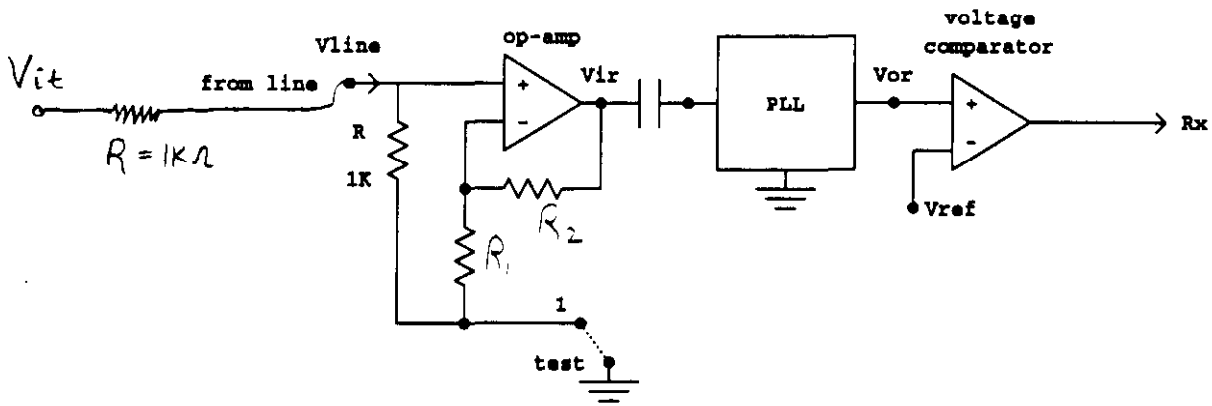


Figure 3: A block diagram of the FSK receiver.

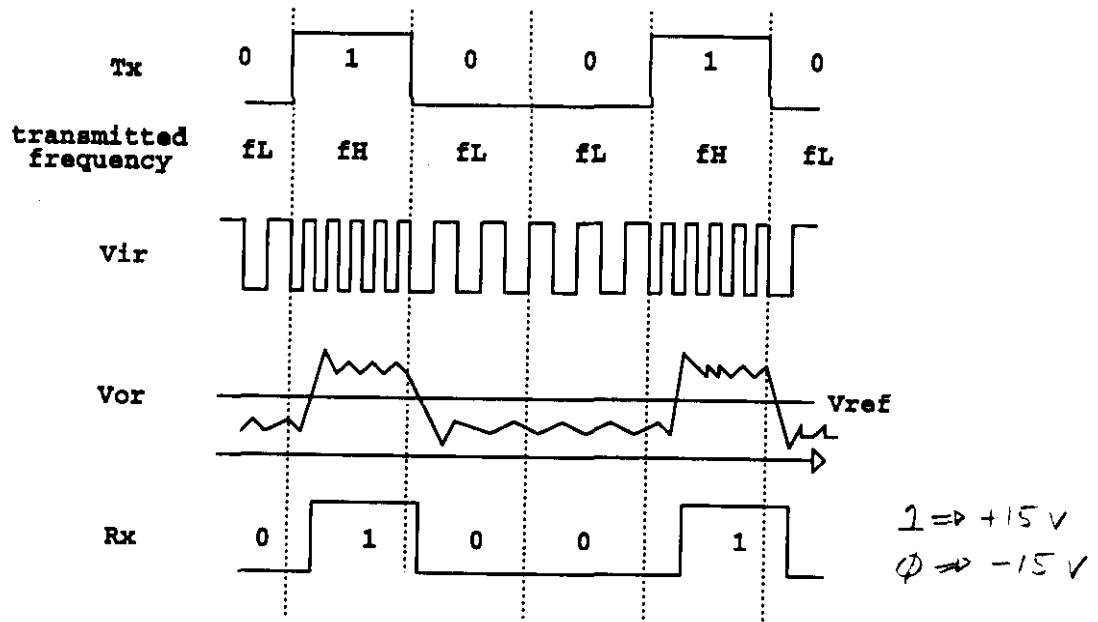


Figure 4: Typical waveforms expected in the system.

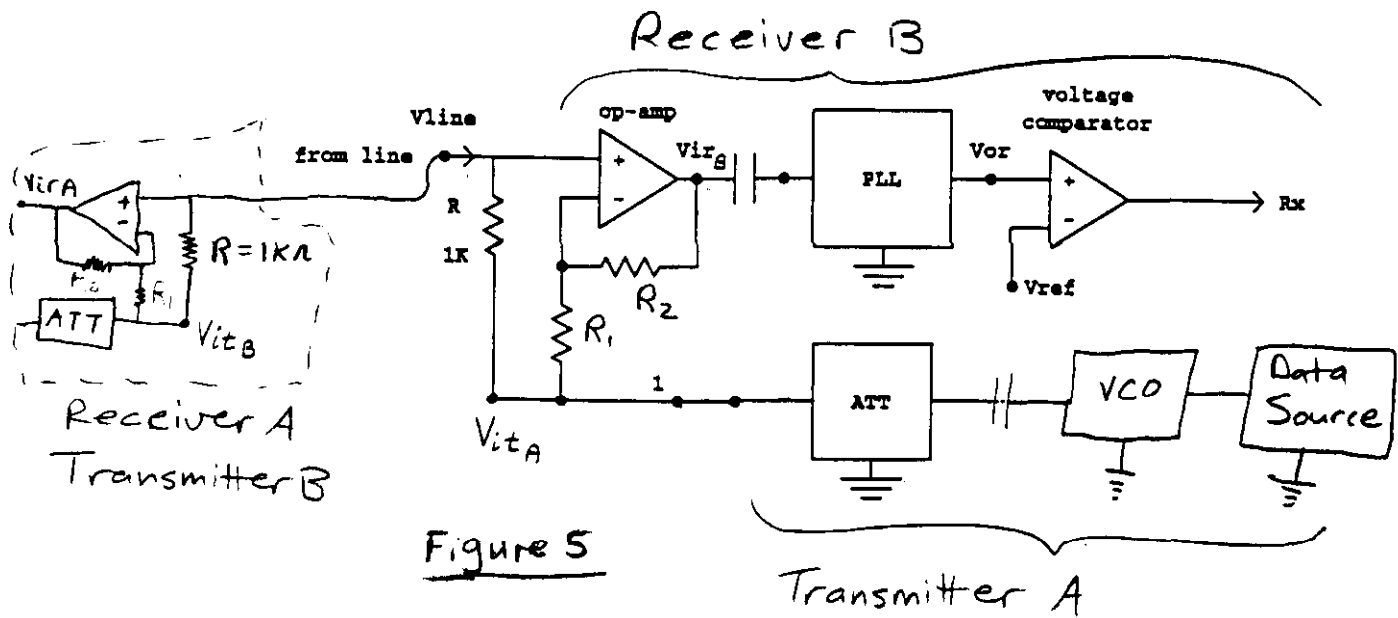
# LAB 5

Two LAB groups

Group 1: Transmit A, Receive B } one breadboard

Group 2: Transmit B, Receive A } one breadboard

The Line: 2 wires: ① Signal ② Ground



ECEN 4618 - 27 FEB 98 (Friday in Class) (1 Hour)  
Exam Review - Open Notes, Open Book.  
- 10% of grade.

I. LAB 1

- A. 555 chip: Monostable, Astable
- B. Input Pulse Ckt.

- 1. Experiment 1: 5%
- 2. Experiment 2: 10%
- 3. Experiment 3: 15%
- 4. Experiment 4: 10%
- 5. Experiment 5: 15%
- 6. Experiment 6: 15%
- 7. Prelabs (total): 10%
- 8. Exam: 10%
- 9. Laboratory work: 10%

II. LAB 2

- A. 555 chip: Astable
- B. CD4093: Nand/Inverter
- C. MOSFET: Switch
- D. Op Amp (LF353): Integrator, Current to Voltage
- E. DAC0808: Digital to Analog Conversion
- F. LM311: Comparator

III. LAB 3

- A. LM311: Comparator with Hysteresis
- B. Op Amp (LF353): Integrator
- C. MOSFET: switches
- D. Potentiometer

III. General LAB

- A. Op Amp (LF353): Inverting / Non Inverting / Buffer
- B. Filters: HP/LP/BP
- C. Resistors: Color Code
- D. Capacitors: Code / Input Caps  $\left\{ \begin{array}{l} \text{DC Power Supply} \\ \text{Chip Power Supply} \end{array} \right.$
- E. Function Generator Volts to Scope Volts.
- G. Power Supplies
- H. Pull up Resistor
- I. Scope Probes