EXPERIMENT 3
SETTING UP FIBER OPTICAL LINK

Objective :

The objective of this experiment is to study a 650 nm fiber optic digital link. In this experiment you will study the relationship between the input signal and received signal.

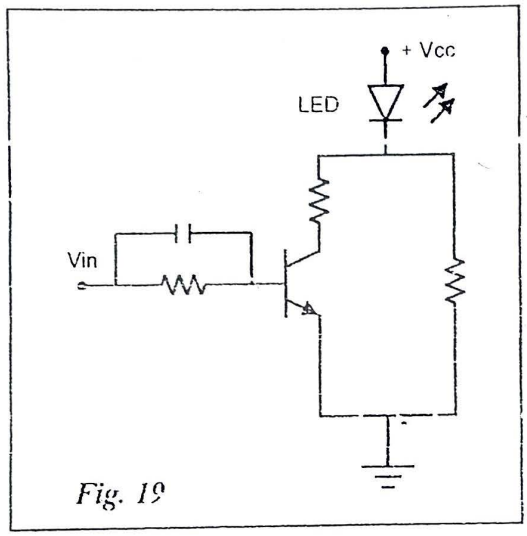

Fig. 19

Fig. 19 shows a simple drive circuit for binary digital transmission consisting a common emitter - saturating switch.

Procedure :

1. Connect the power supply to the board.
2. Ensure that all switched faults are in normal position.
3. Make the following connections (as shown in diagram 2).
   a. Connect the FG 1KHz square wave output to emitters input.
   b. Connect the 1 meter fiber optic cable between emitter output and detector input.
   c. Detectors output to comparators input.
   d. Comparators output to AC amplifier input.
4. On the board, switch emitter's driver to digital mode.
5. Switch ON the power.
6. Monitor both the inputs to comparator (TP9 & TP10). Slowly adjust the comparators bias pot, until DC Level on the input (TP9) lies midway between the high and low level of the signal on the positive input (TP11).

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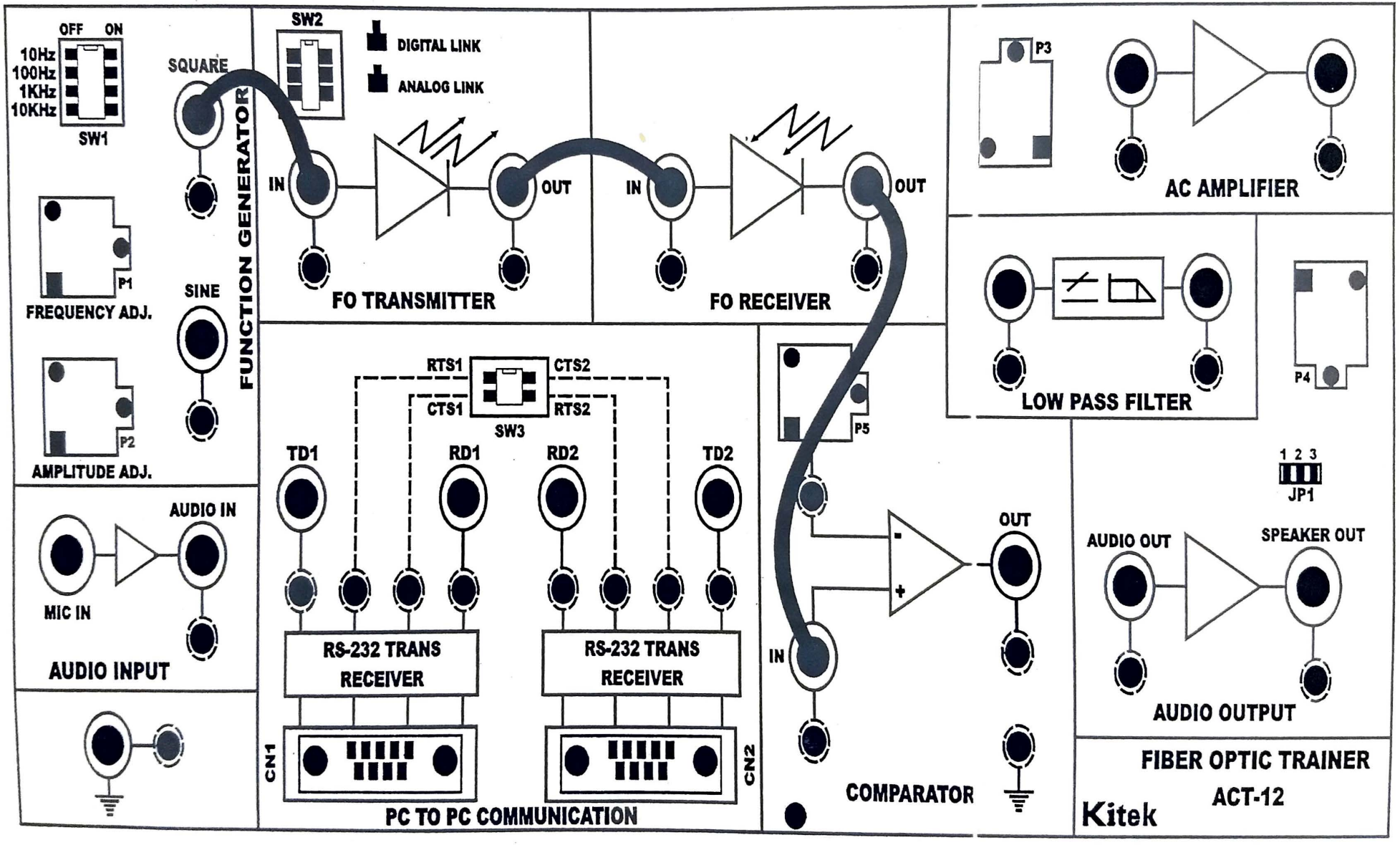
Observed the input to emitter (TP5) with the output from AC amplifier (TP19) and note that the two signals are same.


OFF ON
10Hz
100Hz
1KHz
10KHz
SW1
SW2
DIGITAL LINK
ANALOG LINK
SQUARE
SINE
FUNCTION GENERATOR
P1
FREQUENCY ADJ.
P2
AMPLITUDE ADJ.
IN
OUT
FO TRANSMITTER
FO RECEIVER
P3
AC AMPLIFIER
LOW PASS FILTER
P4
RTS1
CTS2
CTS1
RTS2
SW3
TD1
RD1
RD2
TD2
RS-232 TRANS RECEIVER
RS-232 TRANS RECEIVER
CN1
CN2
PC TO PC COMMUNICATION
P5
OUT
IN
COMPARATOR
1 2 3
JP1
AUDIO OUT
SPEAKER OUT
AUDIO OUTPUT
AUDIO IN
MIC IN
AUDIO INPUT
FIBER OPTIC TRAINER
ACT-12
Kitek