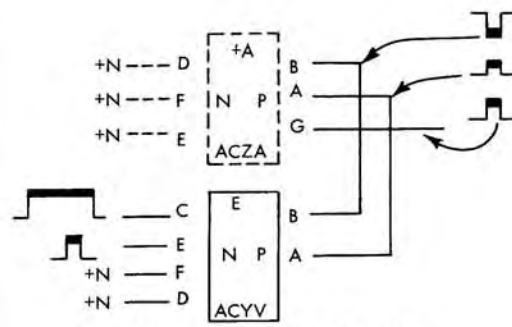
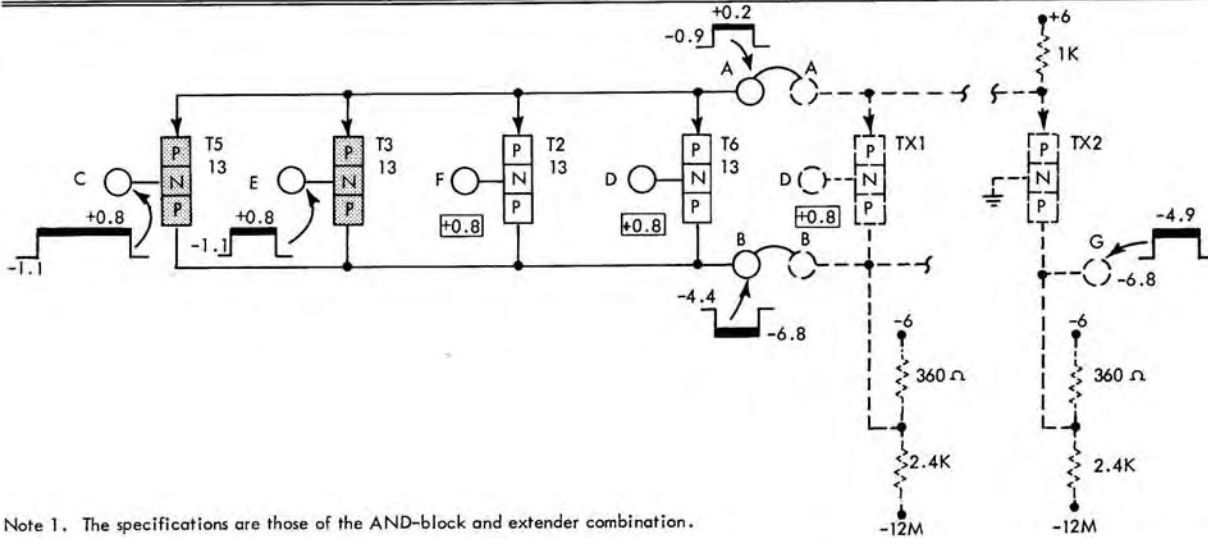


2-Way and 4-Way AND Block Extenders



Typical Application of a 4-Way Extender



Note 1. The specifications are those of the AND-block and extender combination.

| Card Code | Part No 37---- | No of Inputs | Circuit Used as | Input Levels | | In \emptyset Output | | Out \emptyset Output | | ma. Output | | | usec Delay Per | | |
|-----------|----------------|--------------|--------------------|--------------|----------------------------------|-----------------------|------|------------------------|------|----------------|-----------------|-------|----------------|-------------|------|
| | | | | Min. | Max. | Min. | Max. | Min. | Max. | In \emptyset | Out \emptyset | Block | 100uu Load | Driven Base | |
| ACYV | 1227 | 4 | AND-Block Extender | +0.4 | See driver for max Output Levels | -5.6 | -3.5 | -5.6 | -3.0 | Min. | 4.82 | 5.31 | .03 | .02 | .03 |
| ACYW | 1226 | 2 | | -0.4 | | -6.4 | -7.1 | -6.4 | -7.1 | Nom. | 6.0 | 7.6 | .06 | .025 | .035 |
| | | | | | | | | | | Max. | 7.3 | 10.2* | .1 | .03 | .04 |

* Plus the number of inputs times .044ma.

Current Mode Two-Way AND Block Extenders

This type of extender card is used in combination with an AND circuit to increase the number of input legs to the AND. As shown above, a three-way AND is increased to a seven-way AND by using the four-way extender ACYV. Had the two-way extender ACYW been used, the three-way AND would be increased to a five-way AND. In its logic, the circuit above works as a seven-way AND: the +AND function is satisfied only when all seven inputs are positive. As in any +AND circuit, the in-phase output (G) follows the sign of the function and is positive when all inputs are positive. If the -OR function is desired, the in-phase output is negative for any negative input.

Circuit Description

The extender increases the number of inputs by connecting additional input transistors in parallel with the input transistors of the AND circuit. In the circuit above, back panel wiring A-A and B-B connects T5, T3, T2, and T6

in parallel with TX1 of the AND circuit card ACZA. Any -N input (see input C and E) forward biases an input transistor and the emitter line clamps within 0.2v to the input potential. With the emitter at 0.9v as shown, TX2 is reverse-biased and output G is at a -P level of -6.8v because of divider current through its coupling network and output B is at a +P level of -4.4 because of current flow (7.6ma) out of its coupling network through T5 and T3 to +6v.

When all inputs are positive, the emitter of TX2 attempts to rise above ground. In so doing it becomes forward-biased and clamps to its base potential. In this state all input transistors are cut off, so output B falls to a -P level and output G rises to a +P level because TX2 is on.

Application

Extenders are used as +A block extenders or -OR block extenders.