digital-audio-input selector

As the name indicates, the selector is intended to choose one of up to eight digital audio signal inputs, which it does with the aid of a multiplexer.

The multiplexer, IC_6 is controlled by preset up/down counter IC_2. The counter is set with DIP switch S_3 (note that the MSB switch is not used in this application).

The various inputs are selected with press-keys S_1 and S_2. Gates IC_{1d} and IC_{1e}, in conjunction with networks R_1-C_1 and R_3-C_2, provide effective debouncing of the keys.

Resistor R_5 and capacitor C_3 ensure that when the power is switched on, the counter is set.

If fewer than eight inputs are needed, the number can be reduced to four by resetting jumper J_1 so that pin 9 of IC_6 is linked to a fixed level. The non-used inputs of the multiplexer, pins 1, 2, 4, and 5, must be strapped to earth.

Which of the inputs is selected is indicated by one of four or eight LEDs that are controlled by 3-to-8 decoder IC_3 at the outputs pf IC_2. If four inputs are used, D_5–D_8 must be omitted.

Since the digital-audio- input circuits are identical, only one is shown (in dashed lines at the top left-hand side of the diagram). Each has an optical input (IC_5) and a coaxial input (K_1). It needs only one inverter (here IC_{4a}); the others (IC_{4b}–IC_{4e}) are strapped to earth.

The output of the selector also has an optical output (IC_7) and a coaxial output (K_2).

The current drawn by the selector depends primarily on the number of optical modules (each of which draws 20–25 mA).

If standard LEDs instead of high-efficiency types are used, the value of R_{10} should be lowered to 220 Ω. The total current drain then rises by about 10 mA. [Giesberts – 97034]

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