

### Attenuverters

The diagram shows three identical attenuverter circuits, each using a TL074 op-amp. The first circuit (U1D) has inputs J1 IN1 and J4 SIG1OUT, with feedback resistors R4 and R5 (47K) and input resistor R10 (100K). The second circuit (U1C) has inputs J2 IN2 and J5 SIG2OUT, with feedback resistors R6 and R7 (47K) and input resistor R11 (100K). The third circuit (U1B) has inputs J3 IN3 and J6 SIG3OUT, with feedback resistors R8 and R9 (47K), input resistor R12 (100K), and a +10V reference input. All circuits include 100K resistors (R14, R15, R16) connected to the non-inverting inputs and 100K resistors (B100K RV1, B100K RV2, B100K RV3) connected to the inverting inputs.

The diagram shows a 3-to-1 OR gate circuit. It features three input signals, SIG1, SIG2, and SIG3, each connected through a 1N4148WT diode (D5, D6, D7) to the non-inverting input (pin 10) of a TL074 op-amp (U2C). The op-amp is configured with its non-inverting input (pin 10) also connected to a -12V supply through a 220K resistor (R23). The op-amp's output (pin 8) is connected to a 1N4148WT diode (D9) and a 180 ohm resistor (R27). The diode (D9) is connected to the anode of an LED (D11, LED\_Dual\_2pin), and the resistor (R27) is connected to the cathode of the LED. The LED's cathode is also connected to a 3.3K resistor (R25) and a GND. The op-amp's inverting input (pin 9) is connected to the output (pin 8) through a feedback loop. The op-amp's power supply pins (pin 2 and pin 5) are connected to a -12V supply through a 220K resistor (R21). The op-amp's output (pin 8) is also connected to a GND through a 3.3K resistor (R25). The output of the OR gate is labeled J9 OROUT.