



Category: Amplifiers

CIRCUIT IDEAS FOR DESIGNERS

Schematic no. amp_27006.0

Low Voltage Instrumentation Amplifier

Description

This circuit presents a low voltage instrumentation amplifier operating on +/-1V power supplies. This circuit is designed to amplify low level difference-mode signals over a common mode voltage range that may be relatively large compared to the signal voltage levels. Many transducer and bridge circuits that generate limited output voltages can be buffered and amplified by using this low voltage instrumentation amplifier. In this amplifier, the circuit functions as a difference amplifier with high input impedance with respect to the input signals. The 1Mohm input resistances provide isolation and over-voltage protection between the input signal and the instrumentation amplifier. The output impedance for this instrumentation amplifier is very low. The gain of the first stage is given by $(1+100K/50K)$ and the gain for the second stage is equal to $(500K/100K)$. For a differential input V_{IN} , the output is given by $V_{OUT} = V_{IN} \times (500K/100K) \times (1+100K/50K)$. In this example, the gain is fixed at 15

For full schematic diagram and notes, please register and login at aldinc.com