

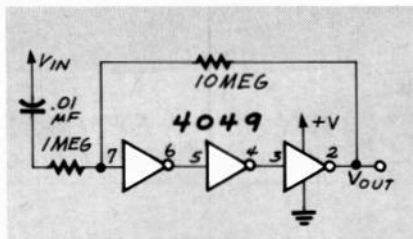
intermediate transistor stage to bring the output of the 4511 up to the level of the output transistor. But, for driving standard common-anode displays that typically want a maximum of about 20 mA per segment, that circuit should solve the problem without any difficulty.

### DIGITAL AMPLIFICATION

**I've built a circuit to accept data from a temperature sensor but the input signal is a bit too low to go through my A-to-D converter. I don't want to have to add analog circuitry to the design so is there any easy way to amplify the incoming signal with digital IC's?—A. Dolan, Belmar, NJ**

Once upon a time there was no way to do that, but your problem can be solved with the addition of a couple of CMOS inverters. You may have to add an IC to the board but, if you've got three spare inverters around, you can use them.

The 4049 is a good choice for this application since it can handle higher power levels and is perfect to use if you've got to do any sort of voltage



**FIG. 3—The 4049 CAN HANDLE** high power levels and is perfect for any sort of voltage translation. The amplifier will give you a gain of 10 with an input impedance of over a megohm.

translation. As shown in Fig. 3, the amplifier will give you a gain of 10 with an input impedance of over a megohm. It doesn't require any kind of special layouts and should work without a problem. If you add a 4049 remember to do something with the unused inverter inputs.

Although you can easily build the circuit, and it will do the job, I don't understand why you don't build a small single-transistor amp to do the same job. I don't know what the characteristics of your input signal are but I'm sure you could easily design a simple transistor amp to provide the gain you need. **R-E**