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TEMPERATURE METER

A temperature meter using the voltage output of a probe, such as one of the three shown, can be economically and straightforwardly implemented with the TC9400 V/F converter. The V/F output is simply counted to display the temperature. For long-distance data transmission, the TC9400 can be used to modulate an RF transmitter.

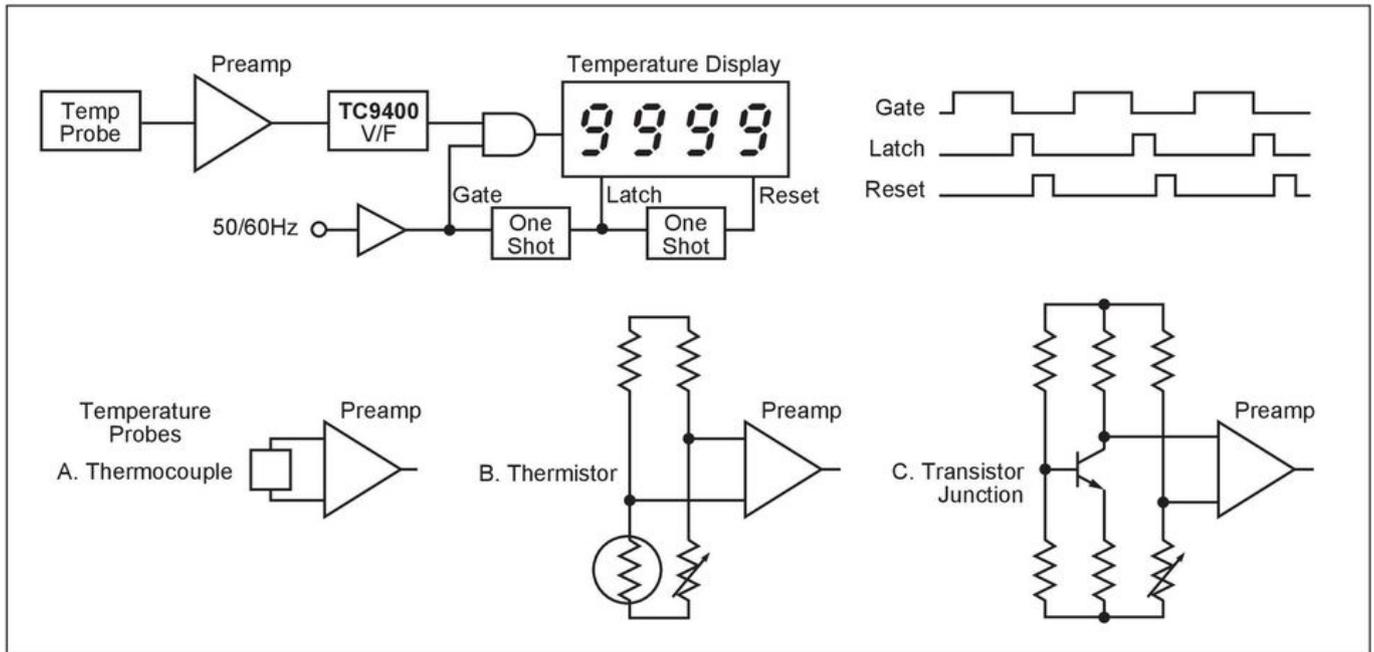


FIGURE 5: Temperature meter.

A/D CONVERSION WITH A MICROCONTROLLER

There are two schemes that can be utilized to accomplish A/D conversion with a microcontroller:

1. Depending on the number of digits of resolution required, V_{IN} is measured by counting the F_{OUT} frequency for 1ms, 10ms, 100ms, or 1 second. The final count is then directly proportional to V_{IN} . (The microcontroller provides the time base.)
2. V_{IN} is measured by determining the time between two pulses (negative edges). F_{OUT} is used as a gate for counting the microcontroller's clock. The final count will then be inversely proportional to V_{IN} .

By taking the one's complement (changing 1's to 0's and 0's to 1's) of the final binary count, a value directly proportional to V_{IN} will result. This technique will give a faster conversion time when resolution is very important, but dynamic range is limited.

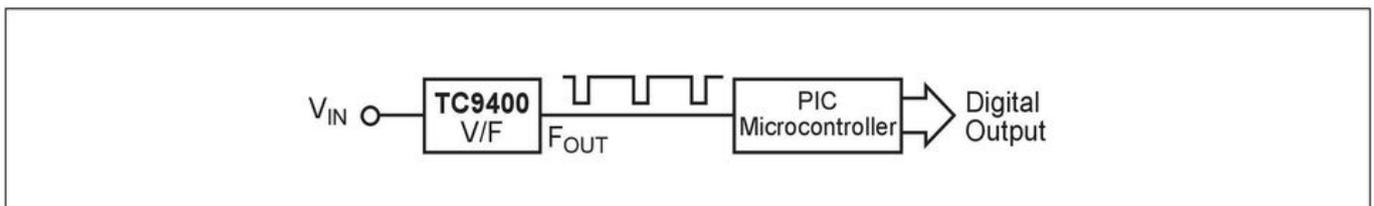


FIGURE 6: A/D conversion with a microcontroller.

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