NetMedia

Basic Express BX-24
Application Note

Using ADC to Read a Potentiometer

Connecting to Analog-To-Digital Converter on BX-24

This application note describes both hardware and software methods for interfacing a potentiometer to the ADC (Analog-to-Digital converter) on a BX-24 system

An ADC converts an analog voltage into a digital format. The BX-24 contains 8 channels of 10-bit ADCs, which are connected to I/O pins 13 to 20. The ADCs have an input range of 0.0 V to 5.0 VDC (on 5 V systems) and will report measured voltage levels in the form of a linear 10 bit digital value (0 to 1023). The resolution is about 4.9 mV. The maximum sample rate is about 6000 samples per second.

Figure 1 illustrates the connections needed to interface a potentiometer to the BX-24, using pin 13 as an example.

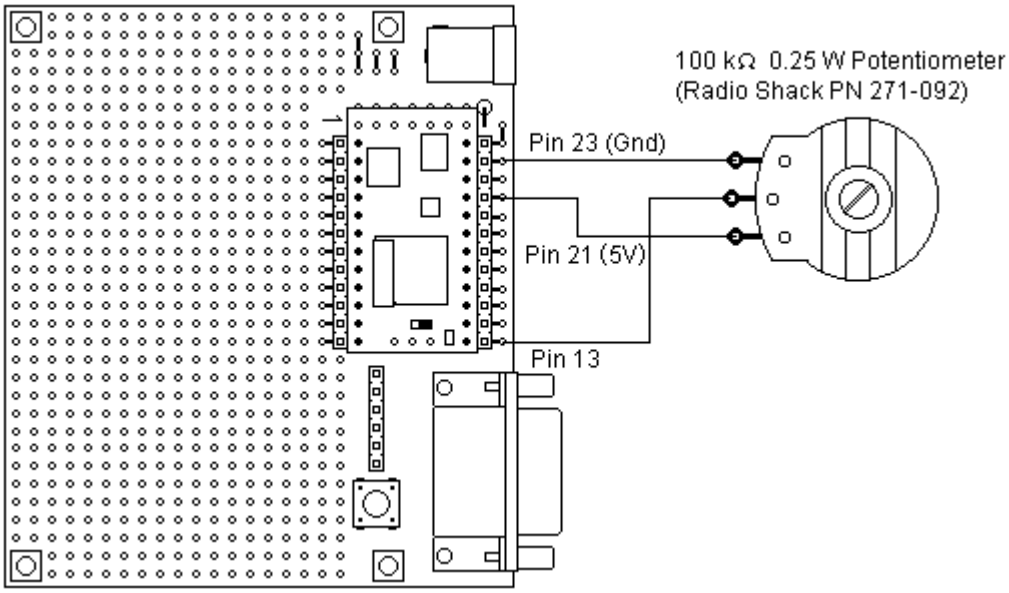

Figure 1

Syntax

System call GetADC is used to read the ADC.

There are 2 versions of GetADC. The integer version returns the raw 10-bit integer voltage. The float version returns the nondimensional voltage in range 0.0 to 1.0. Comparative syntax:

```
Const PinNumber As Byte = 13
Dim iV As Integer, V As Single

' Integer version; iV ranges from 0 to 1023.
iV = GetADC(PinNumber)

' Float version; V ranges from 0.0 to 1.0.
Call GetADC(PinNumber, V)
```

Example program

The program ADCexample illustrates the use of system call GetADC to read the potentiometer. The value of the pot is used to vary the blink rate of the green LED that is built into the BX-24 computer.

Source code for an example program is provided as a separate file. The filename is ADCexample.bas.

2.00.A