TMP122EVM (EValuation Module)

INSTALLATION

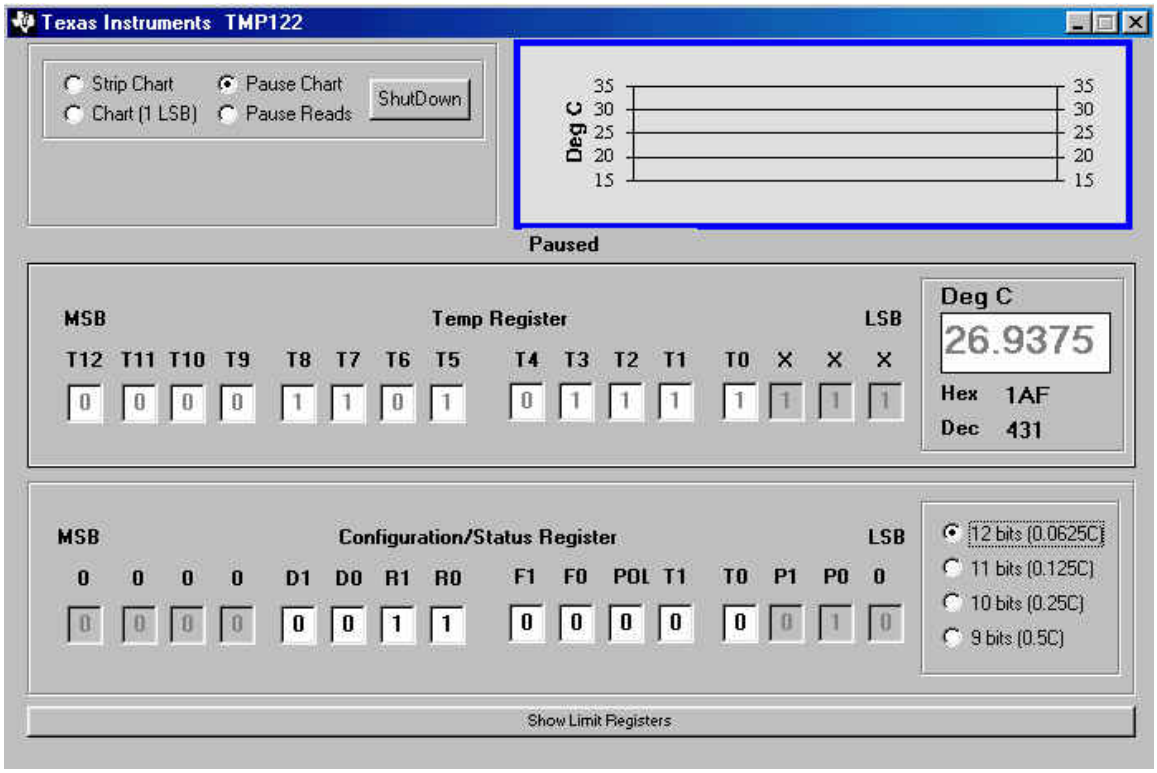
To install the TMP122EVM, simply unpack it and plug it into a 9-pin RS-232 port. You can connect it to an RS-232 cable, as long as the cable carries the proper conductors. Note that this EVM requires the serial port of the PC to supply signals at the +/-12V level. Some PCs have 3.2V serial ports. The EVM will not work with these PCs.

WINDOWS SOFTWARE INSTALLATION

To install the Windows version of the software use Windows Explorer to locate the TMP122 folder on the CD. Double click on the setup.exe and follow the on screen instructions.

SOFTWARE OPERATION

The TMP122 evaluation software functions as a simple digital thermometer. Each feature of the TMP122 can be exercised using the program. When the program is run, it scans the system to see what serial ports are available. If it finds at least one, it searches each serial port for a TMP122EVM, and uses the first one it finds. If the program does not find any TMP122EVMs, it displays a warning message.

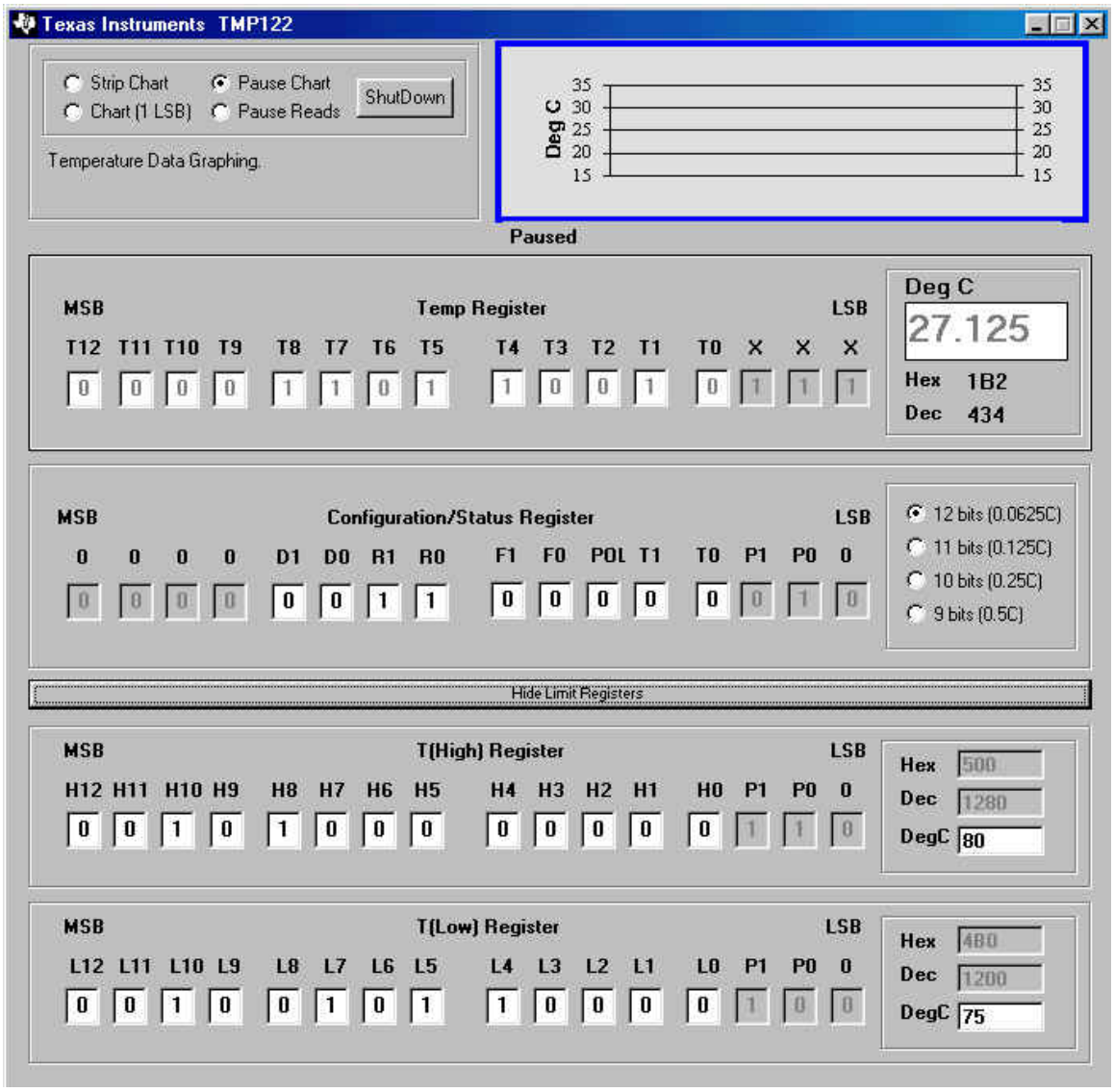


This screen has several areas of interest:

- Near the top left corner of the window is the area that allows the user to control the plot function.
- Below that is the area that displays information based on the cursor location.
- The contents of the measured temperature register are displayed next. User can toggle between Celsius or Fahrenheit by simply clicking on (Deg C) or (Deg F) above the actual display
- Tthe contents of the configuration register are shown in the last panel. User can change those values by simply typing the appropriate bit values in the appropriate bits and pressing ENTER. If user positions cursor over the label for a certain bit an explanation of that bit function will appear in the information panel above.

? User can also (in addition to changing directly configuration register) change the resolution of TMP122 by simply clicking on the appropriate place holder on the right side of the screen.

? On the bottom of the screen there is a “Show Limit Registers” bar that, when pressed, will reveal an additional part of the TMP122EVM window.



? User can set the Limit values by typing the values in either register directly or in the boxes that are located right of the registers. It is always desirable that value of T(Low) Register to be lower than T(High) Register.

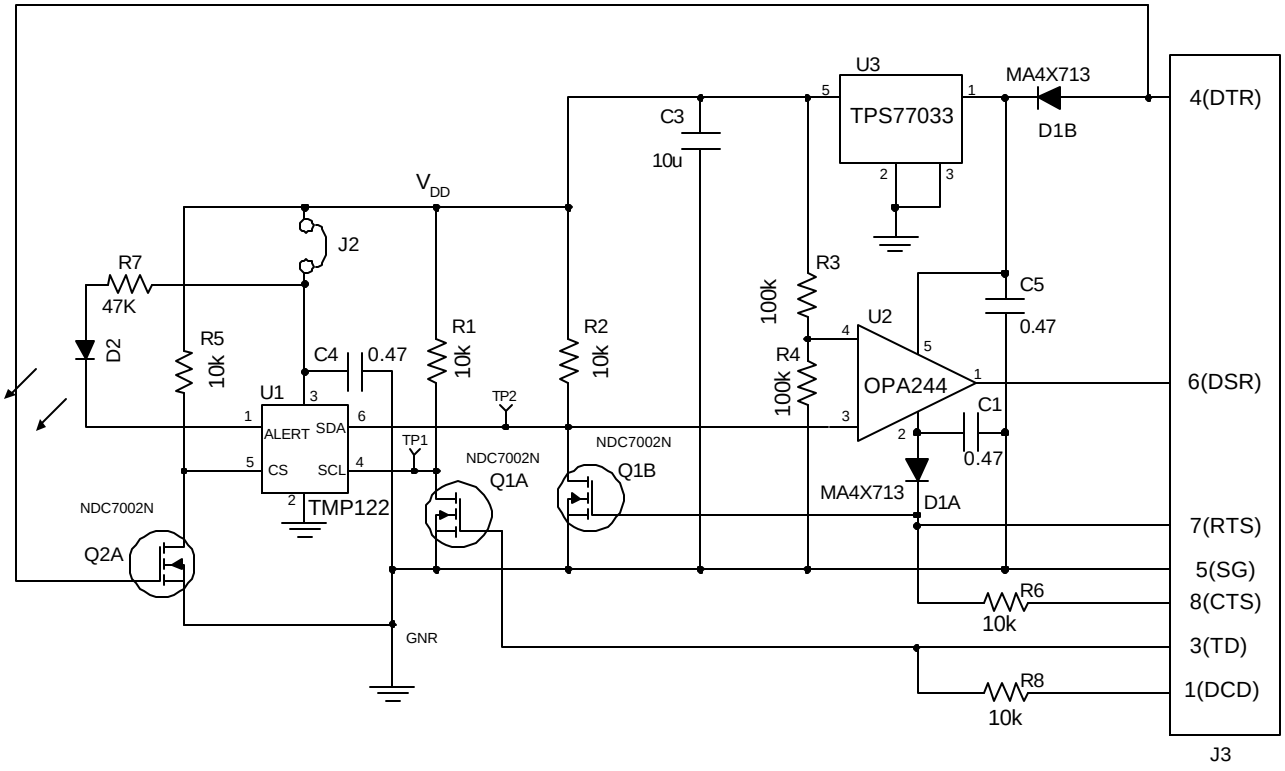
CIRCUIT DESCRIPTION

The TMP122EVM is designed to be as simple as possible. It derives power from the RS-232 port to which it is connected, and interfaces the TMP122's SPI connection to the RS-232 port using a FET pair and an op-amp.

Only three inputs from the computer are available, but this is enough to control the TMP122. One pin, DTR, is used to supply power for the board. When at positive voltage, most systems will generate 10V to 12V, which is enough to drive low-dropout regulator U3 through reverse-voltage protection diode D1B. A regulator with extremely low quiescent current was chosen for this.

To control SCL and SDA, the DSR and transmit-data lines are used. Dual MOSFET Q1 is used to translate the high voltage RS-232 levels into the TMP122's logic levels. The pull-up resistors R1 and R2 are made relatively large so as to consume minimal current in the logic LOW state; since we communicate with the device slowly, the slow rise times caused by these values are of no concern.

SCHEMATICS



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