JX-2P plus i-Stamp2P (OEM BASIC Stamp2P40) Project board

Features

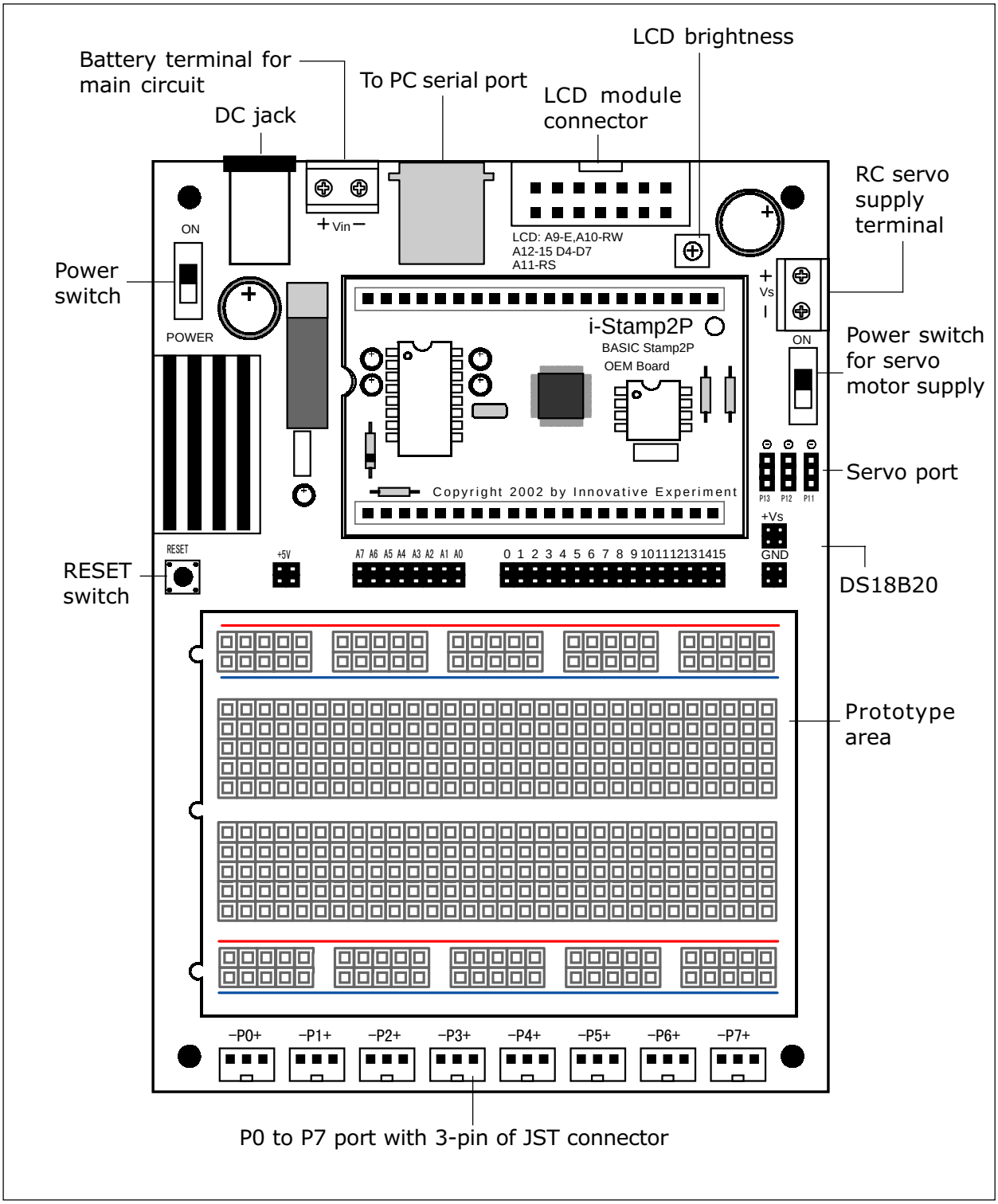
- Socket for i-Stamp2P (OEM BASIC Stamp2P40)
- RJ-11 female connector for downloading and communication
- +5V power supply on board
- Free 24 of i-Stamp2P port (P0 to P15 and A0 to A7)
- Provides in 3-pin JST connector for P0 to P7
- 3 of RC servo motor port (P13 to P15)
- LCD module interfacing with brightness adjustment (LCD module 16x2 with cable is optional; sold separated) connected with A9 to A15 of i-Stamp2P port.
- DS18B20 1-wire Temperature sensor IC on-board (A8 port)
- Prototype area 8.5x5.5 cm. with 200 soldering pad both 100mil (2.54mm.) spacing and 80mil (2.0mm.) spacing. Support the small beadboard (optional - sold sold separated)
- Board size 9.5 x 13 cm.
- 2 of power supply terminals

  - For i-Stamp and any interfacing circuit; use the external power suypply such as DC adpator or battery 6 to12V 500mA (not include), on-board polarity protection circuit. Include the power switch and LED indicator.

  - For the servo motor; support 4.8 to 6Vdc. Use 2-pin terminal block and have the power swith with LED indicator.

Kit contents

- JX-2P plus board
- CX-4 serial port interface cable
- Documentation



Figrure 1 : JX-2P plus board layout; +5V is +5V regulated supply for main circuit, GND is system ground and +Vs is RC servo motor supply voltage. The i-Stamp2P is optional component (sold seprated)

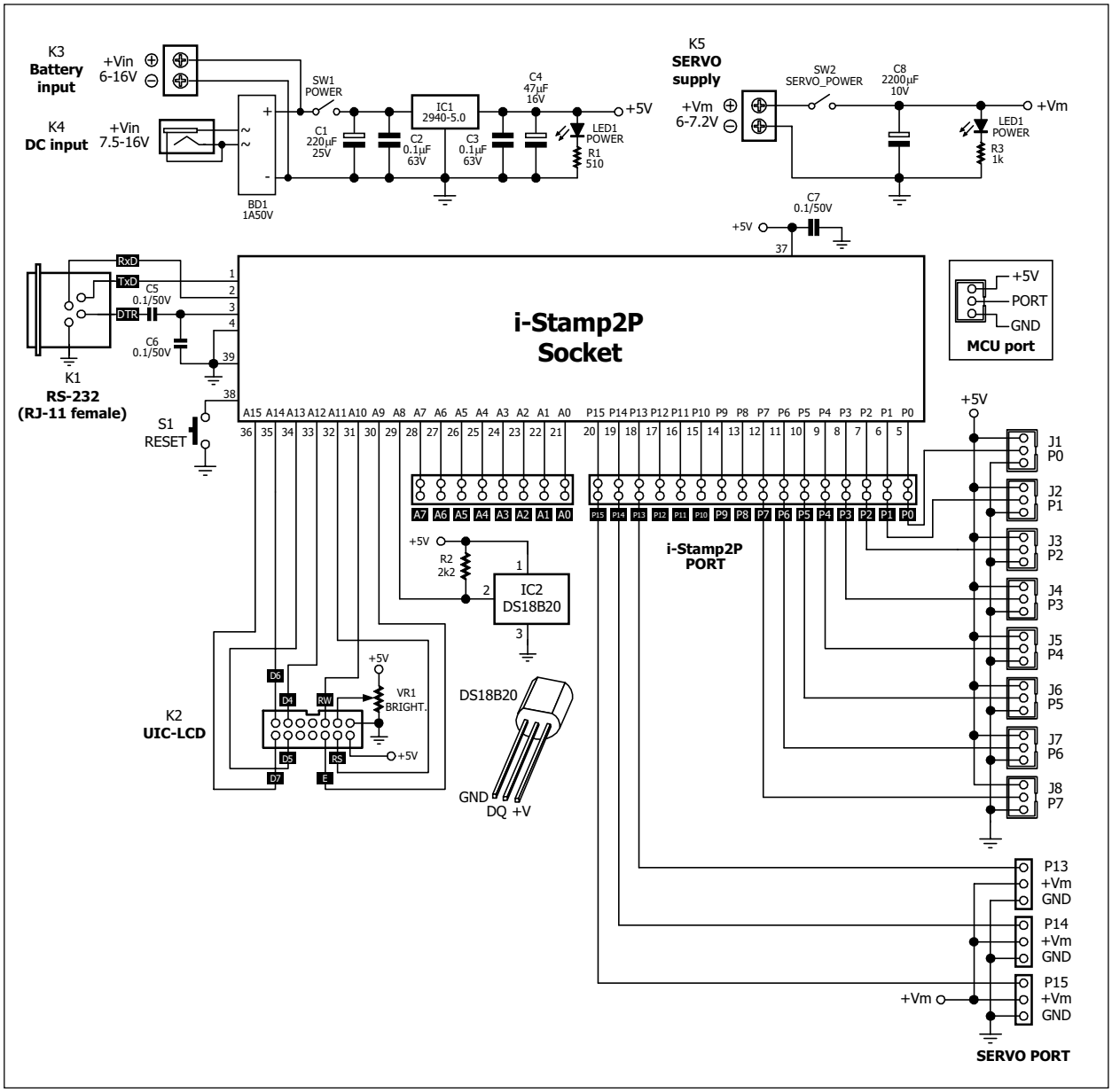
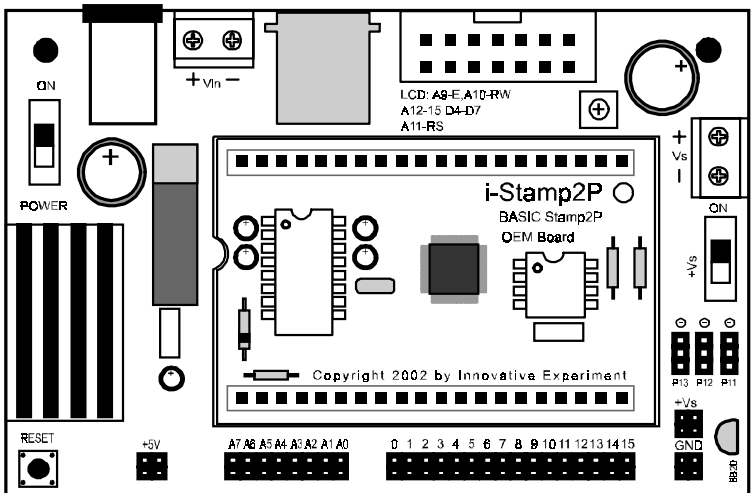


Figure 2 : JX-2P plus i-Stamp2P Project board schematic

Getting start, Step by step

1. Put i-Stamp2P intothe 40-pin female header on the JX-2P plus board. You must put it in the right direction as shown in figure below.

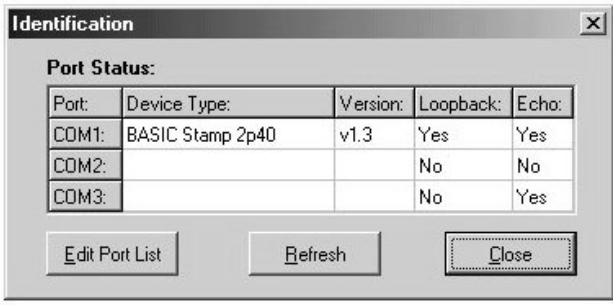


2. Connect the serial port cable between the PC's serial port and the JX-2P plus board. If USB to Serial port converter is used, you need to connect the converter with USB port and connect the serial port cable between the converter and JX-2P plus board. The UCON-232S is recommended.

3. Plug in the DC adaptor or 4 of AA battery pack for supplying voltage to the JX-2P plus Experiment board. Open the BASIC Stamp Editor software.

4. Check the communication between i-Stamp2P and the BASIC Stamp Editor software by pressing on the Ctrl I key or by clicking on the Identify button or by entering the RUN menu and then selecting Identify

If all is done correctly,the Identification box will appear and show the version of PBASIC2SP chip as shown in the figure below. Observe COM1 box, it will show BASIC Stamp2P V1.x (x is any number). Now i-Stamp2P can connect with the BASIC Stamp Editor software.



5. Make a simple program for testing.

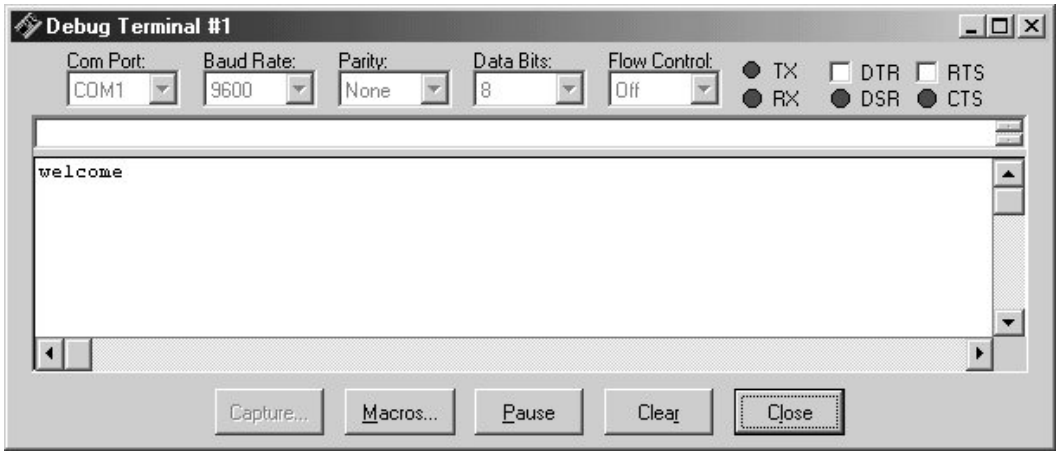
5.1 Select the BASIC Stamp type by BASIC Stamp directive. Enter the Directive menu and select Stamp → BS2P. The message **'{$STAMP BS2P}** appears on first line. Press the Enter key.

5.2 At the Directive menu, select serial port by Port → Com1 (or any Com port that connect). Messge **'{$PORT COM1}** will appear at the second line. Pess Enter.

5.3 At Directive menu, select the version of PBASIC language by PBASIC → Version2.5. Message **'{$PBASIC 2.5}** will appear at the third line. Press Enter

5.4 At programming area, type **debug "welcome**". This short code i-Stamp2P send massage **welcome** to display on Debug Terminal of BASIC Stamp Editor. Press Enter.

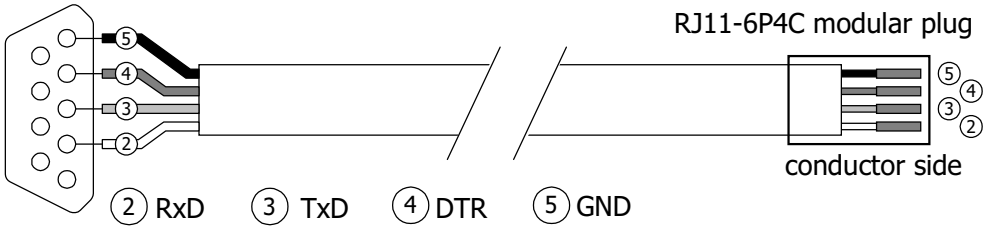
5.5 Click Run button. Debug Terminal will appears and show message "welcome" on the screen.



5.6 Press the RESET switch on the JX-2P plus board. The Debug Terminal screen repeats to show the same message. Because the RESET switch pressing means re-start the program running.

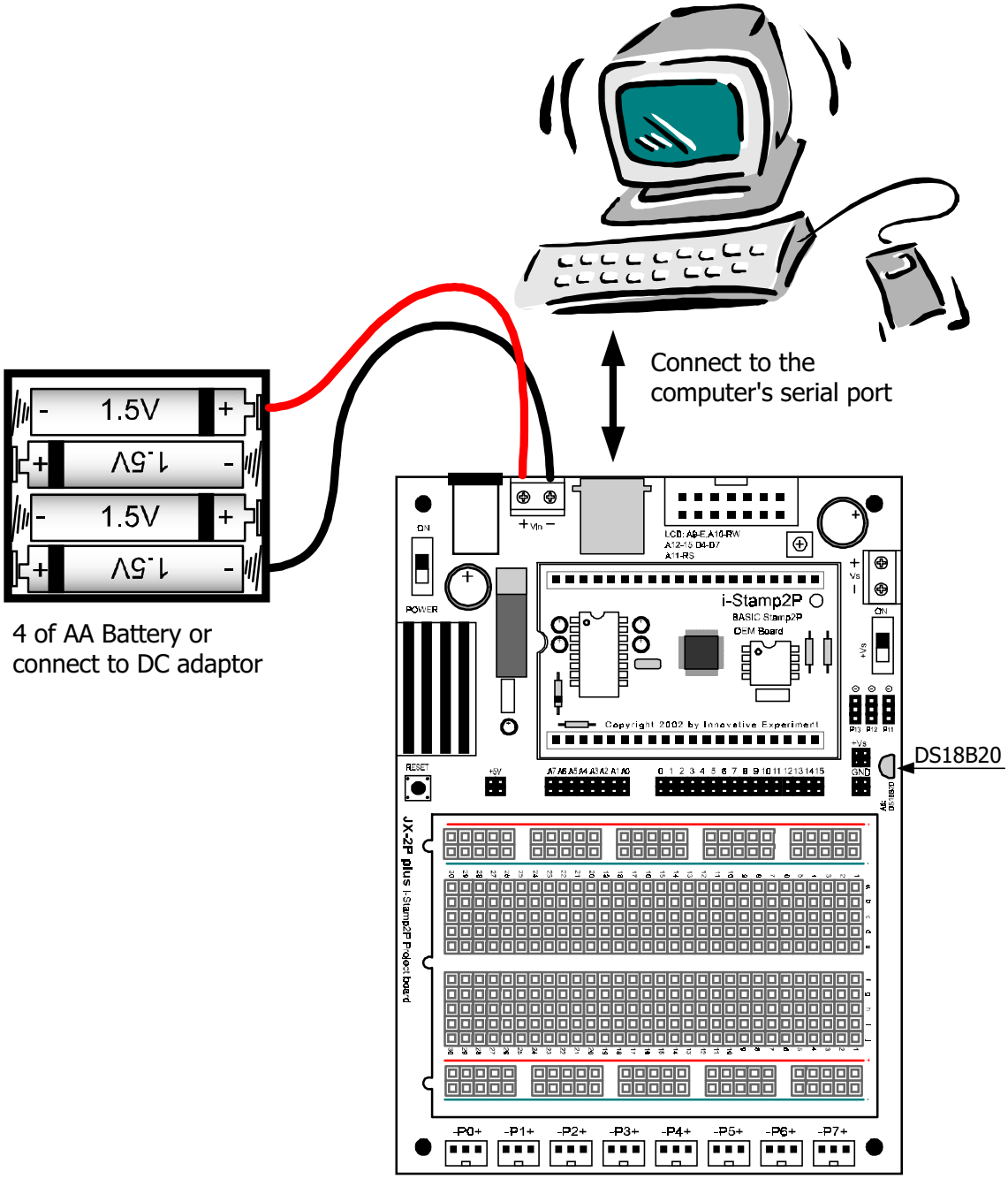
5.7 If dialogue box below is appeared, it means ***The communication between computer and i-Stamp is unsuccessful.***

Check the serial port cable and the status of serial port. You do not have any application software reserved the serial port. About the serial port cable connection diagram is shown below.



5.8 All experiment PBASIC code of i-Stamp2P must be save in the filename extension .bsp

Example program for i-Stamp2P and JX-2P plus



1. Put i-Stamp2P intothe 40-pin female header on the JX-2P plus board.

2. Connect the serial port cable between the PC's serial port and the JX-2P plus board. If USB to Serial port converter is used, you need to connect the converter with USB port and connect the serial port cable between the converter and JX-2P plus board.

3. Plug in the DC adaptor or 4 of AA battery pack for supplying voltage to the JX-2P plus Experiment board. Open the BASIC Stamp Editor software and type this code .

```
'{$STAMP BS2p}
' {$PBASIC 2.5}
' {$PORT COM1}
Temp         VAR   Word           'Holds the temperature value
TH           VAR   Byte
TL           VAR   Byte
Config       VAR   Byte
Reserved1    VAR   Byte
Reserved2    VAR   Byte
Reserved3    VAR   Byte
CRC          VAR   Byte
Point        VAR   Byte
x            VAR   Word
Start:
   AUXIO
   OWOUT 8, 1, [$CC, $44]         'Send Calculate Temperature command
CheckForDone:                     'Wait until conversion is done
   PAUSE 25
   OWIN 8, 4, [Temp]              'Here we just keep reading low pulses until
   IF Temp = 0 THEN CheckForDone 'the DS1820 is done, then it returns high.
      OWOUT 8, 1, [$CC, $BE]      'Send Read ScratchPad command
      OWIN 8, 2, [Temp.LOWBYTE,Temp.HIGHBYTE,TH,TL,Config]
' Format Data
' S S S S S B6 B5 B4  : B3 B2 B1 B0 B-1 B-2 B-3 B-4
' Convert LowByte To Point
Temp = Temp & $0FFF
DEBUG DEC temp/16,"."
x =(Temp << 4) & $00ff
x = 10000 */ x
DEBUG DEC4 x,CR
GOTO start
```

This PBASIC code demostrate the reading temperature from DS18B20 on the JX-2P plus board to display on the Debug Terminal of BASIC Stamp editor.