BOLT 18F2550 SYSTEM GETTING STARTED

This manual consists of two parts:

1. Preliminary tests to Bolt 18F2550 system.
2. Loading and testing 7 projects for the system

1. PRELIMINARY TESTING OF BOLT 18F2550 SYSTEM

For these tests you will need Bolt module with its keypad, LCD display, the USB cable, and a PC or Laptop computer. Please follow step by step the next instructions:

1. Identify the components in the module Bolt, based on the picture shown below. The 18F2550 is factory loaded in FLASH memory with a demo program with 4 applications available.

BOLT 18F2550 MICROCONTROLLER SYSTEM
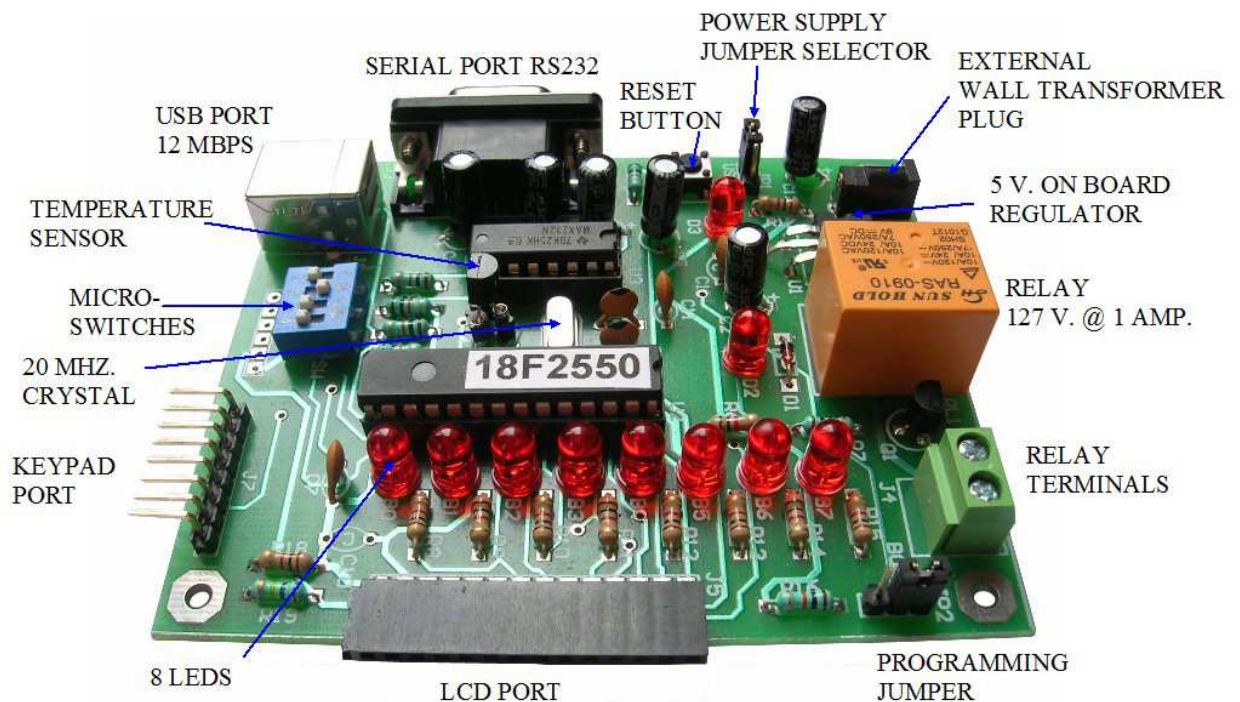
**2. Put the power supply jumper JP1 to the "USB" position (see NOTE 1 at the end of this document).**

3. Insert the programming jumper JP2 in autorun position near the sign "JP2". Both positions are consistent with those shown in the photos below.
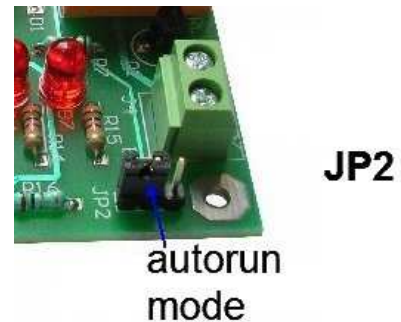
4. Insert the keypad and LCD as shown.

5. Put all 4 microswitches (blue module) in the "OFF" position.

6. Connect the USB cable from the PC computer to Bolt 18F2550 module. The cable will power the module with 5 volt. The LED, next to the reset button, will light. Press the reset button of module and the demo program will start automatically.

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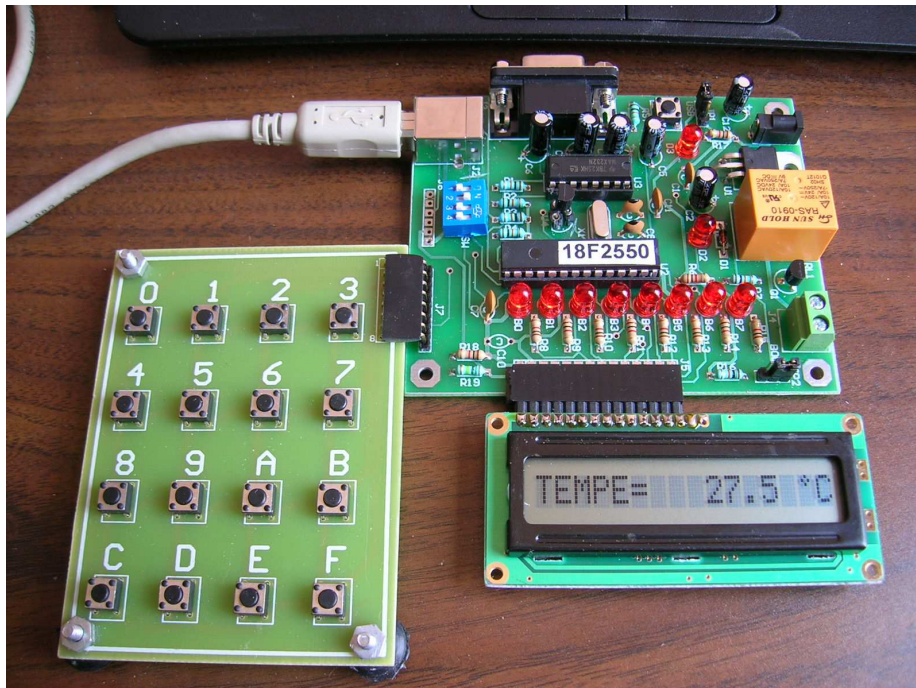
7. The LCD will display a message with dynamic scrolling explaining the operation of the demonstration program. Please read the entire message.

8. To activate each of the 4 applications in this program, position the microswitches as indicated (the rest of the switches should remain "OFF"):

SW1 = ON >> shows text message of 400 characters in LCD with the most important features of Bolt 18F2550 module.

SW2 = ON >> temperature sensor application. Displays temperature of DS18B20 digital sensor in Celsius.

SW3 = ON >> application electronic lock (type pass=3408, press "F"). Activates the relay if the password is correct.

SW4 = ON >> real time clock application. Enter the hour-minute-second from keypad using format 092352 (example). Type "F" at the end.

Press the reset button every time you change the position of the microswitch to activate the new application.

Please proceed to chapter 2 once you have successfully completed steps 1 through 8.

2. LOAD AND TEST 7 PROJECTS FOR BOLT 18F2550 MODULE

9. Make sure the USB cable is connected to your PC or Lap (see photo below).

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10. Find in the support CD the following manual and read instructions of Chapter 2 to install software Bolt v.1.0.1:

"BOLT-18F2550-SYSTEM-PROGRAMMING-MANUAL"

11. Once the software Bolt v.1.0.1 has been succesfully installed, Identify the following folder: "BOLT-18F2550-7-PROJECTS". The contents of folder is displayed in the image below:
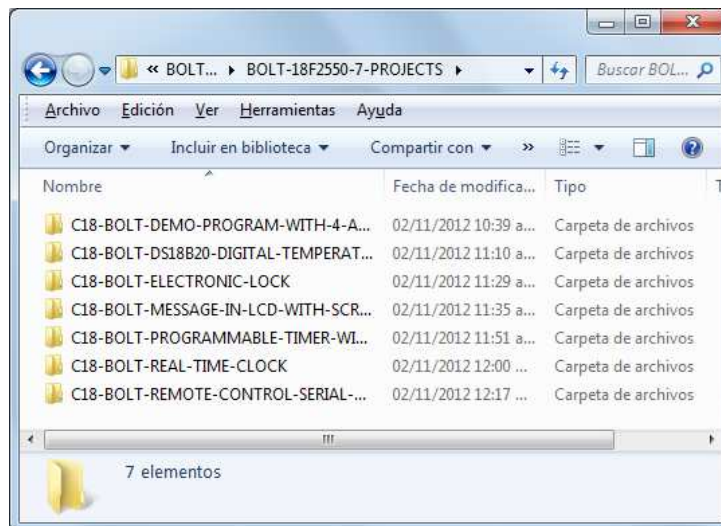
The 7 projects available are:

PROJECT ONE: Demo test Program with 4 applications: combines in one single program, applications of temperature sensor, the LCD message with 400 characters shift, electronic lock and a Real Time Clock. This program is factory loaded in Bolt system. Each application is selected by means of the microswitches.

PROJECT TWO: Remote control module via serial cable: send remote commands from the keyboard of the PC computer and perform various functions in Bolt system.

PROJECT THREE: Electronic lock allows you to enter a password (3408) via the keypad and activates the relay if the password is correct.

PROJECT FOUR: shows an LCD message up to 400 characters with scrolling.

PROJECT FIVE: Programmable Timer with 4 selections: allows programming via keypad of 2 hours ON and 2 hours OFF for relay. Has a cycle of 24 hours.
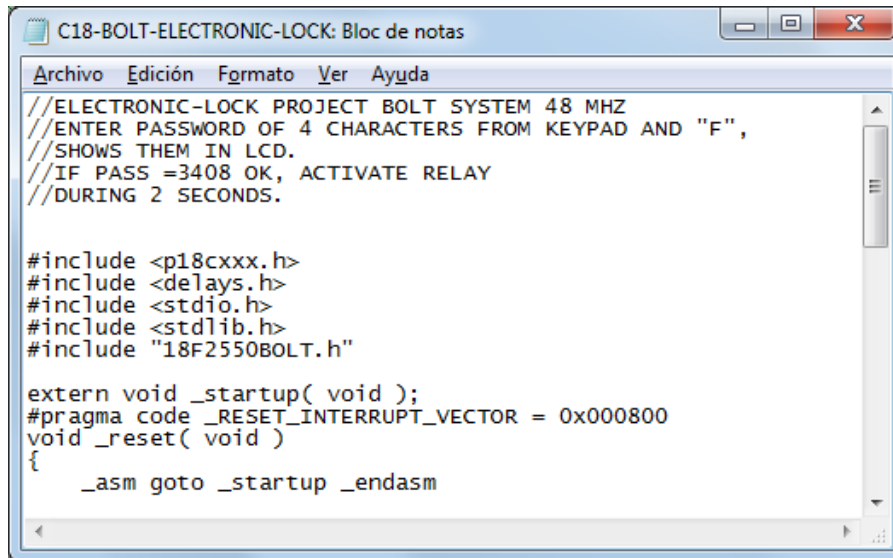
PROJECT SIX: Real-time clock with high precision output LCD displays the time on the LCD. The time is entered via the keyboard hexadecimal.

PROJECT SEVEN: Digital thermometer with LCD output. Shows the room temperature of sensor DS18B20, with an accuracy of 0.1 degrees Celsius.

12. Test each of the seven projects in Bolt system, loading the executable files (.hex), following the steps outlined in Chapters 3 and 4 of the manual:

"BOLT-18F2550-SYSTEM-PROGRAMMING-MANUAL"

13. For details of the operation of each project, open the project folder first and then the source file .C and on top, read its description. For example, the file shown below explains the project of electronic lock.


```
//ELECTRONIC-LOCK PROJECT BOLT SYSTEM 48 MHZ
//ENTER PASSWORD OF 4 CHARACTERS FROM KEYPAD AND "F",
//SHOWS THEM IN LCD.
//IF PASS =3408 OK, ACTIVATE RELAY
//DURING 2 SECONDS.

#include <p18cxxx.h>
#include <delays.h>
#include <stdio.h>
#include <stdlib.h>
#include "18F2550BOLT.h"

extern void _startup( void );
#pragma code _RESET_INTERRUPT_VECTOR = 0x000800
void _reset( void )
{
    _asm goto _startup _endasm
```

NOTE 1: WITH RESPECT TO THE POWER SUPPLY OF BOLT 18F2550 MODULE

The board may be powered in 2 ways: via the USB cable or an external wall transformer. Whatever the option chosen by the user, it is necessary to move the power supply jumper (JP1) according to the indication: "USB" position, power supply is fed via the USB cable. In the opposite, the option is chosen via an external wall transformer.

Powering the board through USB cable, allows the user to quickly develop and test programs, already having a supply voltage of 5 volts available in the cable itself. It is important to note that if you choose this option, and to protect the PC circuits from spikes of inductive loads, this voltage does not power the relay 127v @ 1 amp.

Feeding the board through a wall transformer is an option that allows the user to use the system in field applications, in auto run mode and without the need for connection to a PC. In this case, the card has its own 5 volt regulator integrated, and feeds 100% of the components including the relay mentioned in the above paragraph.

Should you have any questions, please contact us:

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