UM0682
User manual

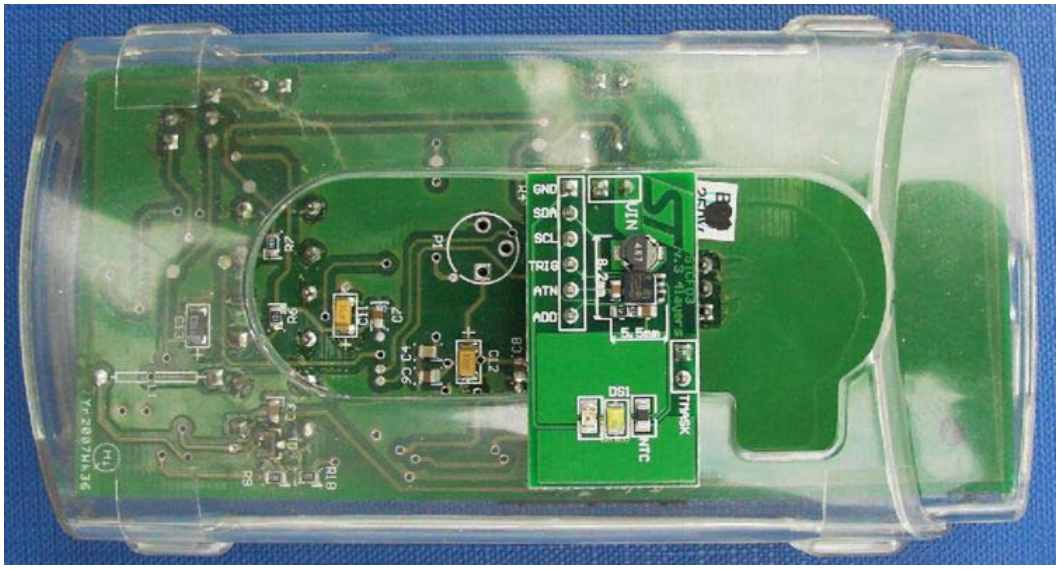
Quick start guide for the STEVAL-TLL005V1 power flash demonstration board

Introduction

This document provides the basic settings and instructions for using the STEVAL-TLL005V1 power flash demonstration board based on the STCF03. The STCF03 is a high efficiency power supply solution to drive a single flash LED in camera phones, PDAs and other hand-held devices. The STCF03 is a buck-boost converter to provide the proper LED current control over all possible battery voltage and output voltage conditions. All functions of the device are controlled by a microcontroller through an I^2C interface.

The STEVAL-TLL005V1 consists of both a motherboard and a daughterboard connected together (STEVAL-TLL004V1 for the daughterboard only).

Figure 1. STEVAL-TLL005V1 power flash demonstration board



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1 Power supply

The STEVAL-TLL005V1 can be powered either by a mobile Li-Ion battery (battery mode), or an external 5 V DC power supply (external power supply mode).

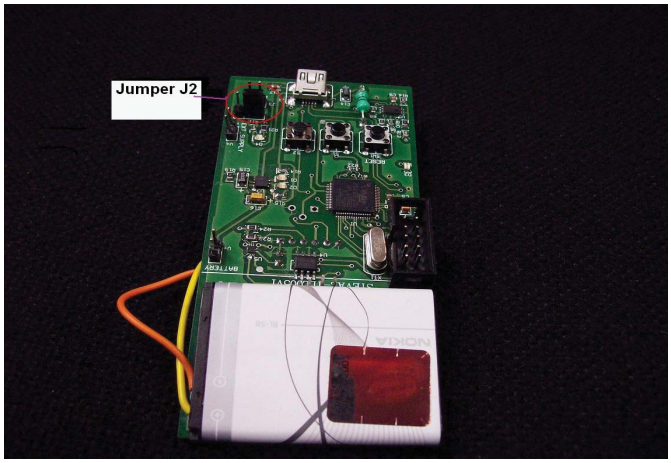
1.1 Battery mode

To power the STEVAL-TLL005V1 by battery, perform the following steps:

- Connect the battery across header H5
- Position the jumper across pins 2-3 of J2 (as shown in *Figure 2*)

When the STEVAL-TLL005V1 is connected to the PC via USB, the battery begins charging automatically with a current of approximately 200 mA. The battery used in testing the system is a NOKIA BL-5B.

Figure 2. J2 connect details for battery mode



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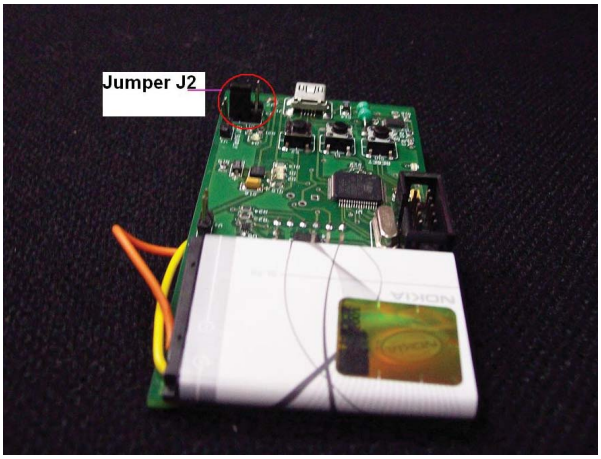
1.2 External power supply mode

If using an external 5 V DC power supply to power the demonstration board, perform the following steps:

- Connect the external DC power supply across header H4
- Position the jumper across pins 1-2 of J2 (as shown in *Figure 3*)

Figure 3. J2 connection details for external power supply mode



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2 Communicating with the PC

To connect the demonstration board to a PC, first provide power to the board using one of the previously explained methods, then connect the USB cable.

When connecting the STEVAL-TLL005V1 demonstration board to the PC for the first time, a prompt to install the driver will appear (the driver is included in the DVD). To install the driver, provide the path to stmcdc.inf when prompted.

Once the board is connected to the PC and the driver installed, the two GUIs (Packet_Creator_ST7.exe and Register_Controller.exe) can be used. The installation file for the GUI is included in the DVD.

3 Switches

There are 3 switches on the STEVAL-TLL005V1: SW1, S1 and S2.

3.1 Switch SW1: reset switch

The SW1 switch is used to reset the system. Pressing it once resets the microcontroller.

3.2 Switches S1and S2: configurable switches

Switches S1 and S2 are configurable, allowing the user to define the glow pattern of the flash and auxiliary LED when the switches are pressed. The switches are configured through the GUI by pressing the “Programme switch 1” and “Programme switch 2” buttons.

Steps for programming switch functionality

1. Power up the board and connect it to the graphical user interface (GUI) through the USB cable.
2. Enter the sequence in the “Command sequence” area of GUI.
3. Press the appropriate Programme switch button to programme the pattern for the desired switch (switch 1or switch 2). The programed pattern will also be visible on the LED board upon pressing the Programme switch button in the GUI.

Note: Up to 25 commands can be entered for the switches in the “Command sequence” area. Exceeding this number will generate the error “A sequence assigned to switches or PIR can have maximum 25 commands”.

4. Once the switches are programmed, the defined glow sequence is displayed each time they are pressed.

4 PIR sensor

The PIR sensor detects nearby motion and provides the signal to the microcontroller.

4.1 Activating the PIR sensor

The PIR sensor is activated by performing the following, in sequence:

1. Program the required pattern using the "Programme PIR" button on the GUI.
2. Place a jumper in J3.
3. LED D4 will glow, showing that the PIR is active.
4. Whenever motion is detected by the PIR, the predefined programmed glow pattern is executed by the flash and auxiliary LEDs.

4.2 Deactivating the PIR sensor

The PIR sensor is deactivated by removing the jumper from J3.

Note: PIR is not mounted on the board.

Note: when RESET switch is pressed then the GUI should be in “Close Connection Mode”.

5 Starting up

Perform the following steps to start the system:

1. Connect the daughterboard to the motherboard using headers H2 and H3
2. Power up the board either through the external power supply or through a battery, and connect the corresponding jumper on J2 as explained in *Section 1.1* and *1.2*
3. Connect the motherboard to the computer using the USB cable
4. Run the GUI.exe from Packet_Creator_ST7.exe or Register_Controller.exe
5. Press the “scan ports for demonstration board” button on the GUI. If there is an error during the connection, the message “demonstration board has not been connected to any COM port.” will appear. In this case, press “close connection” on the GUI, press the reset button on the motherboard and repeat this step from the beginning.
6. When step 5 is successfully completed, the virtual COM port number will be displayed.
7. Press the “I^2C communication test” button on the GUI. If the test is successful, the auxiliary LED on the daughterboard will blink and the “test pass” message will be displayed on the GUI.
8. At this point, the user can proceed with different flash and torch options on the GUI.

6 Revision history

Table 1. Document revision history

Date	Revision	Changes
02-Mar-2009	1	Initial release

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