Overview

The LM53X is the development and evaluation product family for the LM930 / LM931 Bluetooth® low energy module. A great starting point for developing Bluetooth® low energy applications allowing the developer to either evaluate or program the application. This simplifies the development process and reduce the time to the production phase. LM provide application support which includes assisting the developer to create new applications with the LM930 / LM931 module.

Features

- Application Firmware Support
- IoT Applications available including Serial over GATT, Eddystone™ Beacon and Cloud Sensor & Cloud Collector
- Hardware design guidelines
- Pin header for easy connection of LM93X modules
- Arduino compatible
- I²C, UART, AIO and PIO interfaces for application-specific peripheral devices
- Onboard user programmable RGB LED and switches
- Onboard coin cell socket
- Voltage level translators from 3.3V module to 5V Arduino values

- 3.3V supply voltage regulator included
- 78mm x 54mm x 16mm
- Mounting holes

Kit Content

- LM530 Evaluation Board
- LM930 / LM931 Bluetooth® low energy module
- Jumpers (x 3)
- CR2032 Coin Cell Battery
- CSR USB-SPI Programmer Board (Not included)

Support Documents

- LM930 Datasheet: http://goo.gl/hGwnxF
- LM931 Datasheet: http://goo.gl/4o2Loj
- CSR Support Documentation

Rear view of the board showing the coin-cell power option.
Description

The LM53X product family provides a complete set of tools for firmware development, hardware designs and production tests. For developers to produce prototypes with the LM930 / LM931 Bluetooth® module. The LM530 evaluation board enables the developer to evaluate a Bluetooth® low energy application.

LM also provide Bluetooth® application support, including assisting the developer and creating new application firmware with the LM930 / LM931 module.

The LM53X is either USB or battery powered for operating a prototype in a “real world” scenario.

The LM53X is Arduino™ compatible providing the option of connecting the LM930 / LM931 to an Arduino™ Board. The Arduino™ provides the power supply when connected.

IoT Applications

The LM93X standalone module is capable of running your Bluetooth® low energy application. Requiring no external hardware and supports a wide range of applications such as:

- Alert Tag
- Automotive Key Fob
- Beacon
- Blood Pressure Sensor
- Cycling Speed and Cadence Sensor
- Environment Sensor
- Health Thermometer
- Heart Rate Sensor
- Keyboard & Mouse
- Multifunction Steering Wheel
- Security Tag
- Serial Communication
- Time Client
- Temperature and Pressure
- Weight Scale

LM Technologies offer application support, including assisting the developer and creating new applications. LM provide firmware that can be customised to your specification.

Applications available:

- Cloud Sensor
- Cloud Collector
- Eddystone™ Beacon
- URL Beacon
- iBeacon™
- Serial Server
- Console
- Key Fob (with RGB LED Controller)
LM53X Development and Evaluation Product Family
For LM930 and LM931 Bluetooth® low energy Modules

System Block Diagram

Three Power Options

Power via
- USB
- Coin Cell
- Arduino

Note: Only use CR2032 2.7-4.2v for Coin Cell.

Hardware Layout

Connector (CN7)
- (For joining IOREF and 3V3 when FLASH is used for POWERING)

Connector (CN1)
- (For CSR USB-SPI Programmer Board)

USB Power LED

IOH Header

IOL Header

Switch 2
- (User Programmable)

Switch 1
- (For LM93X)

RGB LED
- (User Programmable)

Power Switch

Power Header

AD Header

USB-SPI

CSR Programmer Board

Board LM93X Module

LM53X DEV KIT
DEMO BOARD

COIN CELL

Coin Cell Lithium Rechargeable Cell
(2.7v - 4.2v ONLY)

COIN

CELL

ARDUINO™

ARDUINO™

SPI

SPI

USB-SPI

USB Power

LM93X Module

LM53X DEV KIT
DEMO BOARD

Power Switch

Coin Cell

USB / Arduino

54mm

78mm
The table above presents the signal connections from the CSR1012 chipset pins, to the LM93X edge pins through to the Arduino headers (IOH, IOL, Power and AD).
LM53X Development and Evaluation Product Family
For LM930 and LM931 Bluetooth® low energy Modules

Schematic

See Last Page
Datasheet Version Notes

v1.0 13 MAR 2018 Added version notes to datasheet.
LM53X Packaging Options

<table>
<thead>
<tr>
<th>Part No</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>530-0657</td>
<td>LM530 EVALUATION BOARD</td>
<td>1 x LM530 Evaluation Board</td>
</tr>
</tbody>
</table>
| 530-0653 | LM530 EVALUATION KIT | 1 x LM530 Evaluation Board  
1 x LM931 Plug & Play IC Ant Module  
Refer to Note 2 |
| 530-0654 | LM530 EVALUATION KIT | 1 x LM530 Evaluation Board  
1 x LM930 Plug & Play IPEX Ant Module  
Refer to Note 2 |

- **Note 1**: Product User Guides, Manuals and Configuration Software can be downloaded via our website - [http://www.lm-technologies.com/downloads](http://www.lm-technologies.com/downloads)
- **Note 2**: For programming LM93X firmware, please contact the sales representative.