

Bluetooth Indoor Solar Development Kit (LES100)

System Overview

- The LES100 dev board system extends the TI CC2650 Sensortag Bluetooth and data collection by integrating energy harvesting and an indoor solar panel. It is capable of operating at extremely low light levels, less than 200 lux.
- LES100 is designed to be fully customizable. DevPack and JTAG connectors are present for debugging and adding TI DevPack plug-in modules. All IO pins can be accessed via a 10 pin female header so that external sensors can easily be added. The current onboard sensors can be disconnected by removing SMD jumpers to allow access to all 10 IO pins.
- Software development can be done using Code Composer Studio and Android Studio, which are both free to use. Hardware modifications can be done using EAGLE CAD software.

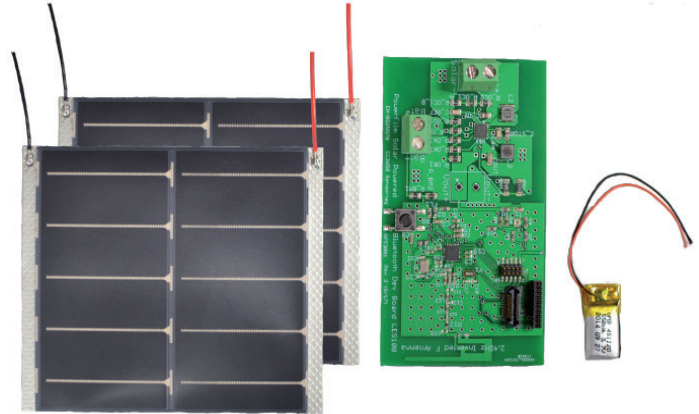


Figure 1: Kit Contents

What's In The Kit?

- Board
 - LES100 PCBA
- Panel with wires
 - (2) LL200-2.4-75
- Battery
 - Model: DTP301120
 - Nominal Voltage: 3.7V
 - Typical Capacity: 40 mAh
 - Includes protection circuit

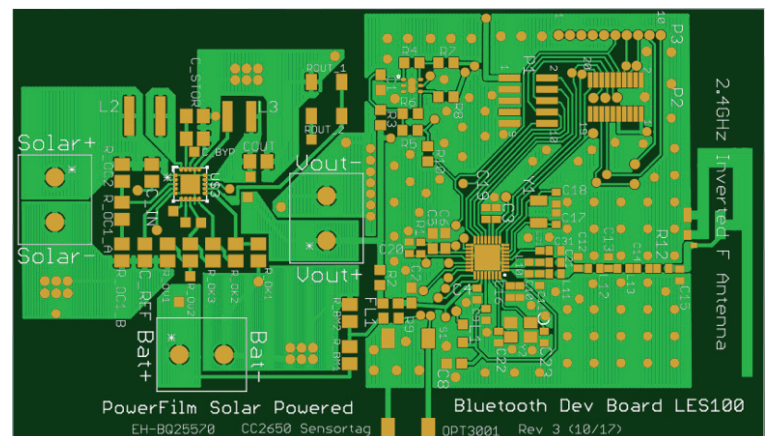


Figure 2: Board Layout

PowerFilm[®]

SOLAR

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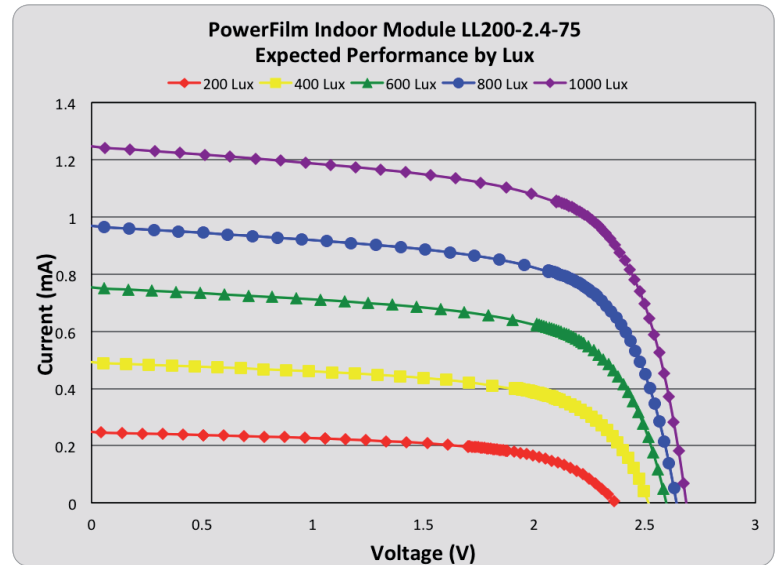
Number of Cells	Cell Width (cm)	Module Length (mm)	Type
2	4	73	Tandem Junction

Panel Size: 3.5 in x 2.9 in / 88.9 mm x 73.7 mm

Module width: 114

Minimum		
Lux	Operating Voltage	Power (mW)
200	1.6	0.29
400	1.8	0.66
600	1.9	1.08
800	2.0	1.44
1000	2.1	1.91

Absolute maximum open circuit voltage: 3.7V



Use Cases:

There are many remote sensing applications. Depending on sensor power requirements, the LES100 DevKit and PowerFilm solar panels will support the applications listed below:

Sensing Applications

- Temperature
- Humidity
- Pressure
- Occupancy
- Light Level
- Vibration
- Motion
- Acceleration
- Acoustic
- Air Flow
- Water Flow
- Water Level
- Strain
- Moisture
- Air Quality

IoT Applications

- Home Automation
- Wearables
- Smart Buildings
- Beacons
- Smart City
- Smart Agriculture
- Wireless Nodes
- Equipment Monitoring
- Asset Tracking
- Smart Transportation
- Gateways
- Industrial Automation
- Beacons
- Equipment Monitoring
- Industrial Automation

Additional Resources

[IC \(BQ25570\) Data Sheet](#)

[OEM Instructions](#)

[CC2650 Data Sheet](#)

[OEM Solar Panels](#)