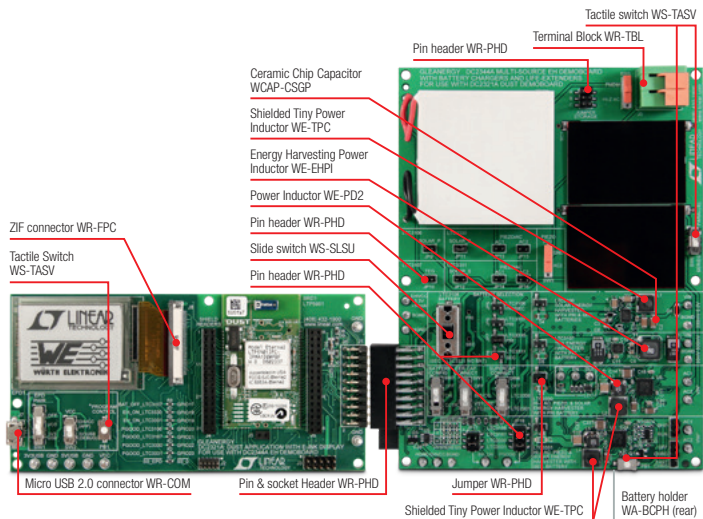


# Gleanergy

## Wireless Sensor Node Development Platform

### Overview

- As sensor nodes become ubiquitous, the need to power wireless sensor nodes from ambient energy sources will be a necessity. Possible ambient energy sources include light, heat, vibration, stress/strain, high intensity AC magnetic fields and micro-sized rotational or oscillatory electromagnetic generators. In many instances a battery will be required to “ride through” the periods of time when the ambient energy source is either not present or not sufficient to power the sensor.
- This development platform demonstrates the ability to utilize any one or multiple ambient energy sources to power a wireless sensor node and extend the life of a primary or secondary battery. A convenient system is provided to enable users to customize the development platform for their specific use case and make a complete working prototype.



## Würth Elektronik Featured Components

### Power Inductors

- WE-EHPI Energy Harvesting Power Inductor (1:100 turn ratio)
- WE-TPC Shielded Tiny Power Inductor
- WE-PD2 Power Inductor



### Capacitors

- WCAP-CSGP Ceramic Chip Capacitor Various X5R, X7R



### Connectors

- WR-PHD pin headers
- WR-TBL Terminal Block
- WR-PHD Shunt/ Jumper
- WR-COM Micro USB 2.0 connector
- WR-FPC ZIF connector



### Switches / Miscellaneous

- WS-TASV SPST tactile switch
- WS-SLSU SPDT slide switch
- WS-DISV 5x SPST dip switch
- WA-BCPH battery holder
- WA-CHAD cable mount



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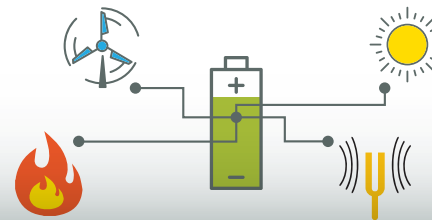
Learn more at [www.we-online.com/gleanergy](http://www.we-online.com/gleanergy)

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## Demonstration Kit Gleanergy



- Linear Technology DC2344A Multi-source energy harvester w/ battery life extenders
- Linear Technology DC2321A Dust application demoboard w/ E-Ink display
- Linear Technology DC2510A Shield board for use with DC2321A



## Linear Technology DC2321A



### Dust application demoboard with E-Ink display

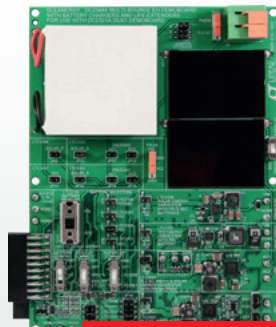
#### Features:

- LTP5901 Dust assembly including ARM Cortex-M3 processor embedded with SmartMesh IP networking software
- E-Ink display for user feedback
- Two coulomb counters for battery data measurement
- Shield board headers and programming headers for development

#### Getting Started:

- Download the GUI to evaluate board features
- Download IAR Embedded Workbench to write a custom program
- Use a JTAG debugger or Eterna Serial Programmer to upload your program
- Optionally, use DC2510A shield board to connect extra components to the ADCs, GPIOs, and serial ports of the mote

## Linear Technology DC2344A



More information on [www.we-online.com/gleanergy](http://www.we-online.com/gleanergy)

### Multi-Source Energy Harvester with Battery Charging and Life Extenders

#### Features:

- On-board thermoelectric generator and solar cells (series or parallel)
- Rechargeable and non-rechargeable batteries
- Four energy harvester ICs which charge/extend life of batteries
- Bank of ceramic capacitors and supercapacitor for energy storage
- Completely customizable IC settings and routing connections

#### Getting Started:

- Choose an energy harvesting source, battery, and capacitor storage type
- Configure jumpers/switches to match chosen system settings (instructions provided in manual)
- Optionally, move resistor jumpers to change IC settings
- Use regulated output supply to power DC2321A or any load



#### Solar Cell

- LTC3106 – Solar energy harvester for primary/secondary batteries
- LTC3330 – Solar energy harvester for primary batteries
- LTC3331 – Solar energy harvester for secondary batteries



#### Thermal Electric Generator – TEG

- LTC3107 – Thermal energy harvester for primary batteries



#### Piezoelectric Element

- LTC3330 – Piezoelectric energy harvester with primary battery
- LTC3331 – Piezoelectric energy harvester with secondary battery



#### Inductive Generator

- LTC3330 – electromagnetic energy harvester for primary batteries
- LTC3331 – electromagnetic energy harvester for secondary batteries

#### For more information on specific ICs, go to:

[www.linear.com/product/LTC3106](http://www.linear.com/product/LTC3106)

[www.linear.com/product/LTC3107](http://www.linear.com/product/LTC3107)

[www.linear.com/product/LTC3330](http://www.linear.com/product/LTC3330)

[www.linear.com/product/LTC3331](http://www.linear.com/product/LTC3331)