

# LS RESEARCH Wireless Modules and Dev Kits



	Si-FLEX LS900-SI-02	Pro-FLEX LS240-ZP-01	Ti-Wi LS240-WI-01
Frequency	900 MHz	2.4 GHz	2.4 GHz
Standard	IEEE 802.15.4 / ZigBee	IEEE 802.15.4 / ZigBee	IEEE 802.11 b/g/n Bluetooth
Processor	Atmel Atxmega a256A3	TI MSP430F5437	N/A
Operating Current	300mA Transmit 30mA Receive	175mA Transmit 30mA Receive	185mA Transmit 110mA Receive
Data Rate	UP to 1 Mbps	250 Kbps	Per Standard
Operating Voltage	2.0 V – 3.45 V	2.2 V – 3.3 V	3.0 V – 4.8 V
Output Power	24 dBm	20 dBm	WLAN +14.5 dBm, Bluetooth +9.5 dBm
Receiver Sensitivity	-102 dBm	-99 dBm	WLAN -76 dBm, Bluetooth -92 dBm
Memory	256K Flash 16K RAM 4K EEPROM	256K Flash 16K RAM	N/A
Integrated Antenna	Yes	Yes	No
External Antenna Support	Yes	Yes	Yes
Host Interface	UART	UART	SDIO
AES Encryption	Yes	Yes	Yes



## PRO-FLEX

The Pro-FLEX module is a high performance 2.4GHz IEEE 802.15.4 radio (CC2520 & CC2591) and microcontroller (MSP430F5437) in a cost effective, pre-certified footprint. The module comes preloaded with the TI MAC-Stack that can be used with the LSR host serial interface.

Full debug and programming capabilities are included to develop custom applications. Easily load the TI ZigBee stack or MAC onto the module and create your own network.

### Features:

- 2.4 GHz DSSS 802.15.4/ZigBee/6LoWPAN Transceiver
- Very Versatile, Ultra Low Power Microcontroller Platform
- Serial Communications API (UART)
- Simple ProFLEX Network Protocol: Star Networks
  - Simple Repeating
  - AES Encryption
- Supports Smart Energy profile
- Interoperability with ZigBee Pro Devices
- Open Hardware Platform to Enable User Developed Application Code

### Specifications:

- 100mW RF Output Power
- RF Receive Sensitivity up to -99 dBm
- Integrated Inverted-F Antenna with Option for External Antenna
- FCC/IC/CE Certified
- 2.2V to 3.3V Operation
- 256K Flash / 16K RAM
- Power Consumption: 75mA in Transmit  
30mA in Receive  
<8uA in Sleep



MOUSER STOCK NO.	LS Research Part No.	Description	Price Each			
			1	50	100	1000
741-LS240-ZP-01-A10	LS240-ZP-01-A10	Pro-FLEX Module with Inverted-F Antenna	31.15	30.50	29.20	27.99
741-LS240-ZP-01-A20	LS240-ZP-01-A20	Pro-FLEX Module with U.FL Connector	32.64	32.05	31.23	30.76
741-LSDEV-ZP01-A10	LSDEV-ZP01-A10	Pro-FLEX Development Kit	299.00	-	-	-
<b>Accessories</b>						
741-001-0001	001-0001	2.4 GHz Dipole Antenna for Pro-Flex U.FL Module	5.10	4.90	3.98	3.90
741-450-0058	450-0058	PROFLEX01 Shield for Arduino W/U.FL Antenna	50.95	47.50	45.00	43.50

## SI-FLEX

The SiFLEX module is a high performance 900MHz IEEE 802.15.4 radio (AT86RF212 & RF amplifier circuit) and microcontroller (ATXMEGA256A3) in a cost effective, pre-certified footprint.

Full debug and programming capabilities are included to develop custom applications. Easily load the ZigBee or MAC stack onto the module and create your own network.

### Features:

- 900 MHz DSSS 802.15.4/ZigBee/6LoWPAN Transceiver
- Very Versatile, Ultra Low Power Microcontroller Platform
- Serial Communications API (UART)
- Simple SiFLEX Network Protocol: Star Networks
  - Simple Repeating
  - AES Encryption
  - Data Rate up to 1 Mbps
- Open Hardware Platform to Enable User Developed Application Code

### Specifications:

- 250mW RF Output Power
- RF Sensitivity up to -102 dBm
- FCC/IC Approved (pending)
- 2.0V to 3.45V Operation
- 256K Flash / 16K RAM / 4K EEPROM
- Power Consumption: 300mA in Transmit  
30mA in Receive  
<5uA in Sleep



MOUSER STOCK NO.	LS Research Part No.	Description	Price Each			
			1	50	100	1000
741-LS900-SI-02-A30	LS900-SI-02-A30	Si-FLEX with Wire Antenna	38.52	38.00	37.88	37.50
741-LS900-SI-02-A20	LS900-SI-02-A20	Si-FLEX with U.FL Connector	44.85	43.80	42.50	41.20
741-LSDEV-SI02-A30	LSDEV-SI02-A30	Si-FLEX Development Kit	299.00	-	-	-
<b>Accessories</b>						
741-001-0002	001-0002	900 MHz Dipole Antenna for Si-Flex U.FL Module	15.00	14.85	14.50	14.00
741-080-0001	80-0001	U.FL to Reverse Polarity-SMA Bulkhead Cable for Si-Flex U.FL Module	4.40	4.10	4.07	4.00
741-450-0060	450-0060	SIFLEX02 Shield for Arduino W/Wire Antenna	53.95	50.00	48.50	47.00

## TIWI-R2 TRANSCIVER MODULE

The TiWi-R2 module is a high performance 2.4 GHz IEEE 802.11 b/g/n Bluetooth 2.1+EDR radio in a cost effective, pre-certified footprint. The module realizes the necessary PHY/MAC layers to support WLAN applications in conjunction with a host processor over a SDIO interface. The module also provides a Bluetooth platform through the HCI transport layer. Both WLAN and Bluetooth share the same antenna port.

### Features:

- IEEE 802.11 b,g,n,d,e,i, compliant
- Typical WLAN Transmit Power: 20.0 dBm, 11 Mbps, CCK (b) 14.5 dBm, 54 Mbps, OFDM (g) 12.5 dBm, 65 Mbps, OFDM (n) Output Power: 9.5 dBm, Class 1.5
- Bluetooth 2.1+EDR, Power Class 1.5
- Typical WLAN Transmit Power: -89 dBm, 8% PER, 11 Mbps -76 dBm, 10% PER, 54 Mbps -73 dBm, 10% PER, 65 Mbps.

### Specifications:

- Miniature footprint: 18 mm x 13 mm
- Low height profile: 1.9 mm.
- U.FL connector for external antenna.
- Terminal for PCB/Chip antenna feeds.
- Integrated band-pass filter
- Worldwide acceptance: FCC (USA), IC (Canada), and ETSI (Europe)
- Compact design based on Texas Instruments WL1271WSP Transceiver.
- Seamless integration with TI OMAP™ application processor.
- SDIO Host data path interfaces.
- Bluetooth Advanced Audio Interfaces
- Low power operation mode.
- RoHS compliant
- Streamlined development with LSR design services.

MOUSER STOCK NO.	LS Research Part No.	Description	Price Each			
			1	50	100	1000
741-450-0037	450-0037	TiWi01-R2 Module U.FL Connector, WiFi / 802.11	32.55	31.80	30.80	29.55