DLP-RF1/2 FAMILY OVERVIEW

Featuring Freescale™ RF & Microcontroller Technology*

2.4GHz ISM Band RF Transceivers

Direct Sequence / Spread Spectrum

802.15.4 Compliant and ZigBee™ Ready

OEM Pricing Available

DLP-RF1 **DLP-RF2**

The DLP-RF1 and DLP-RF2 OEM Modules are short-range, low-power, 2.4-GHz, unlicensed worldwide ISM band transceivers designed around the IEEE 802.15.4 Wireless Standard. Both support point-to-point and star network configuration using preprogrammed firmware.

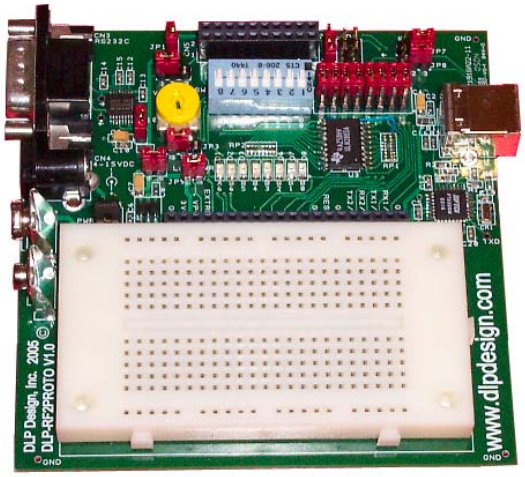
The RF1 and RF2 are ready for either direct design into finished product or as a quick wire replacement within a home or office application. The units come preprogrammed with DLP Design's Serial Interface Packet Processor (SIPP™)** firmware based upon Freescale's SMAC RF IC control firmware. If the SIPP firmware does not meet the requirements of the project at hand, then the BDM interface is available for reprogramming the microcontroller with user firmware.

- Freescale MC13192 RF Transceiver IC
- Freescale MC9S08GT60 Microcontroller, 60K FLASH ROM, 4K RAM, 10-Bit A/D Converter
- IEEE 802.15.4 Compliant and ZigBee Ready
- 16 Channels (2.405GHz to 2.480GHz)
- Supports 250 kbps O-QPSK Data in 5.0-MHz Channels & Full Spread-Spectrum Encode/Decode (Compatible with IEEE Standard 802.15.4)
- Power Down Modes Available for Power Conservation
- BDM Interface for Flash Programming and Firmware Debug
- Agency Approvals for the US, Canada, and Europe
- Antenna Integral to PCB Design–No External Antenna to Purchase and Mount
- SIPP Firmware

DLP-RF1 FEATURES	DLP-RF2 FEATURES
• Host Programming Interface as Easy as RS232C; No USB Driver Development Required for Windows / Mac / Linux	• TTL Serial Interface to Host Microcontroller / DSP / FPGA, Etc.
• Operating Temperatures: 0°C to 70°C	• Operating Temperatures: -40°C to 85°C
• Operational Power Taken from USB Port	• Power Supply Range: 2.0 to 3.4 V; 7-Channel, 10-Bit A/D Converter
• All USB and Transceiver Configurations Stored in On-Board, Non-Volatile Memory	• 20-pin, .1-inch Spaced Interface Header for Connection to User Electronics
• (L x W x H) 2.7" x 2.04" x .12" (.5" at USB connector); 68.6 x 51.8 x 3.1mm (12.7mm at USB connector)	• (L x W x H) 1.7" x 1.1" x .12" (.27" at 20-pin header); 43.2 x 27.9 x 3.1mm (6.7mm at 20-pin header)

© 2005 (Preliminary Data)

DLP-RF2 DEVELOPMENT TOOLS



DLP-RF2SENS **DLP-RF2PROTO** **DLP-RF2RELAY**

A 20-pin interface header is provided for each of these development tools to allow quick connection to the DLP-RF2 transceiver.

The **DLP-RF2PROTO** is intended to enable the designer to quickly progress in the development of hardware and software associated with wireless networking projects. This board offers a number of flexible tools to accommodate numerous modes of operation:

- BDM Programming Interface
- Easy-to-Use USB Interface for Modeling Serial Host Firmware on a PC
- RS232C (DB9) Interface for Connection to a Legacy Peripheral
- Buffered LED Indication of 8 Selected Digital I/O Lines
- Low-Power Mode Jumper
- Prototyping Breadboard
- Three Power Sources: USB Port, DC Jack (4-15VDC), or 9-Volt Battery Clips
- A/D and Voltage Reference Setups

The **DLP-RF2SENS** provides example designs for a temperature/humidity sensor, door switch input, and a system for measuring battery power. This developer's tool demonstrates the low-power mode of operation in which the module remains in Sleep Mode drawing less than 40 microamps of current from two AAA batteries until either the door switch input detects a change or the timer wakes up the transceiver to check in with the system controller.

The **DLP-RF2RELAY** also demonstrates the low-power mode of operation while providing a battery power measurement system and door switch input together with two latching relays. While in Sleep Mode, the total system current drawn from two AA batteries is less than 40 microamps regardless of the state of the relays.

** Source code for DLP Design's SIPP firmware is based on Freescale's SMAC for the HCS08, which is compatible with the Metrowerks™ CodeWarrior™ Special Edition (16K) C compiler, and is available for purchase directly from DLP Design under signed NDA.