



# **USER MANUAL**

NOVEMBER 2013

**2.433-2.449 GHz Frequency Hopping Transceiver Module**

**Model: A-CCA-LPA-24G-1**

**FCC ID: R73LPA-24G-1**

**REV 4**

## Introduction

*This module is only authorized to be installed in fixed mount installation and may not be installed in a mobile or portable device.*

The LPA-24G-1 RF module is to be used in Sapling Analog Clocks such as the SAL Series Clocks and equivalent models.

The module is only to be connected to and installed in other Sapling products.

## Specifications

The PCB antenna gain is +3.3dB maximum.

The maximum output power will be 18 dBm.

The transmit cycle is a sequence of 80 data strings on 76 different frequencies, each transmitted for 3 msec.

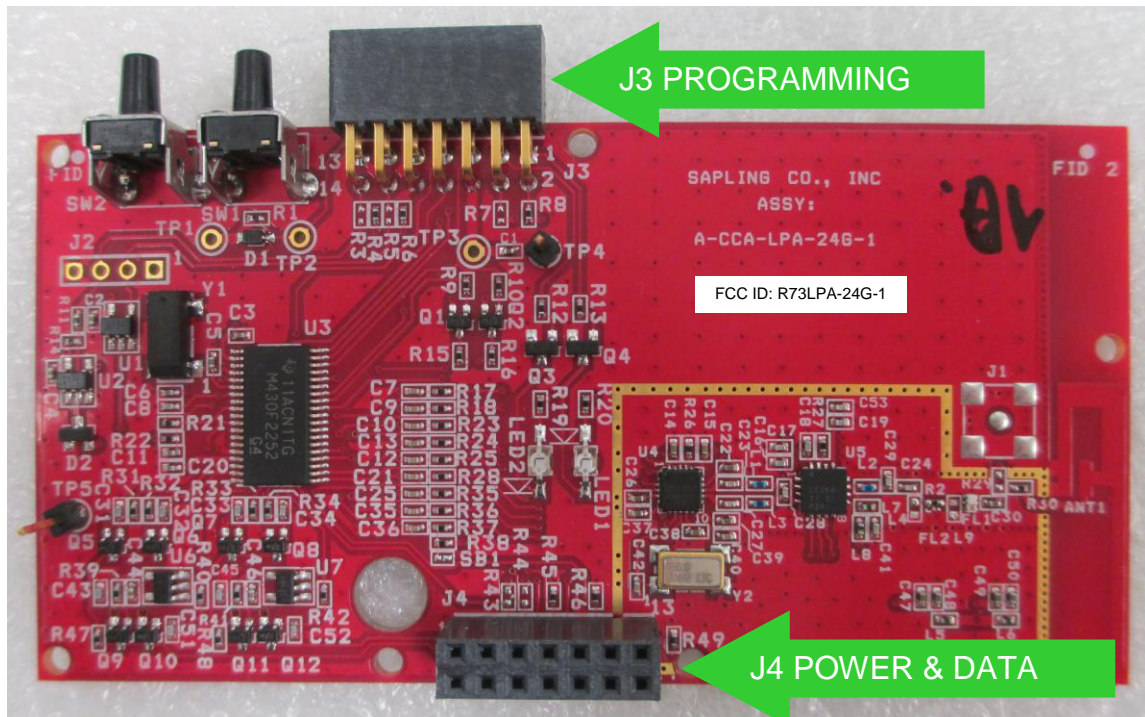
Every transmit cycle is 240 msec in duration (80 x 3msec).

The frequency hopping pattern is proprietary to Sapling and covers the range from 2.433 to 2.449 GHz.

## Connections

The picture shows the LPA-24G-1 RF module, connectors, and FCC ID label.

### LPA-24G-1



## LPA-24G-1 Connectors

<b>J3 PROGRAMMING CONNECTOR</b>	
PIN 1*	TDO/TDI
PIN 2	3.3 VOLTS
PIN 3	TDI
PIN 4	3.3 VOLTS
PIN 5	S2 DRV (TMS)
PIN 6	1.8 VOLTS
PIN 7	TCLK
PIN 8	TEST
PIN 9	GROUND
PIN 10	GROUND
PIN 11	RST
PIN 12	TXD
PIN 13	SHIELD
PIN 14	RXD
* PIN 1 IS THE SQUARE PAD.	



**J3 PROGRAMMING**

<b>J4 GEARBOX CONNECTOR</b>	
PIN 1*	MOT SEC 1 1.8 VOLTS
PIN 2	MOT SEC 2
PIN 3	MOT MIN 1 1.8 VOLTS
PIN 4	MOT MIN 2
PIN 5	GRBX SEL A
PIN 6	GRBX SEL B
PIN 7	PWR DET
PIN 8	S1
PIN 9	GROUND
PIN 10	S2
PIN 11	3.3 VOLTS
PIN 12	GRBX DET
PIN 13	1.8 VOLTS
PIN 14	GROUND
* PIN 1 IS THE SQUARE PAD.	

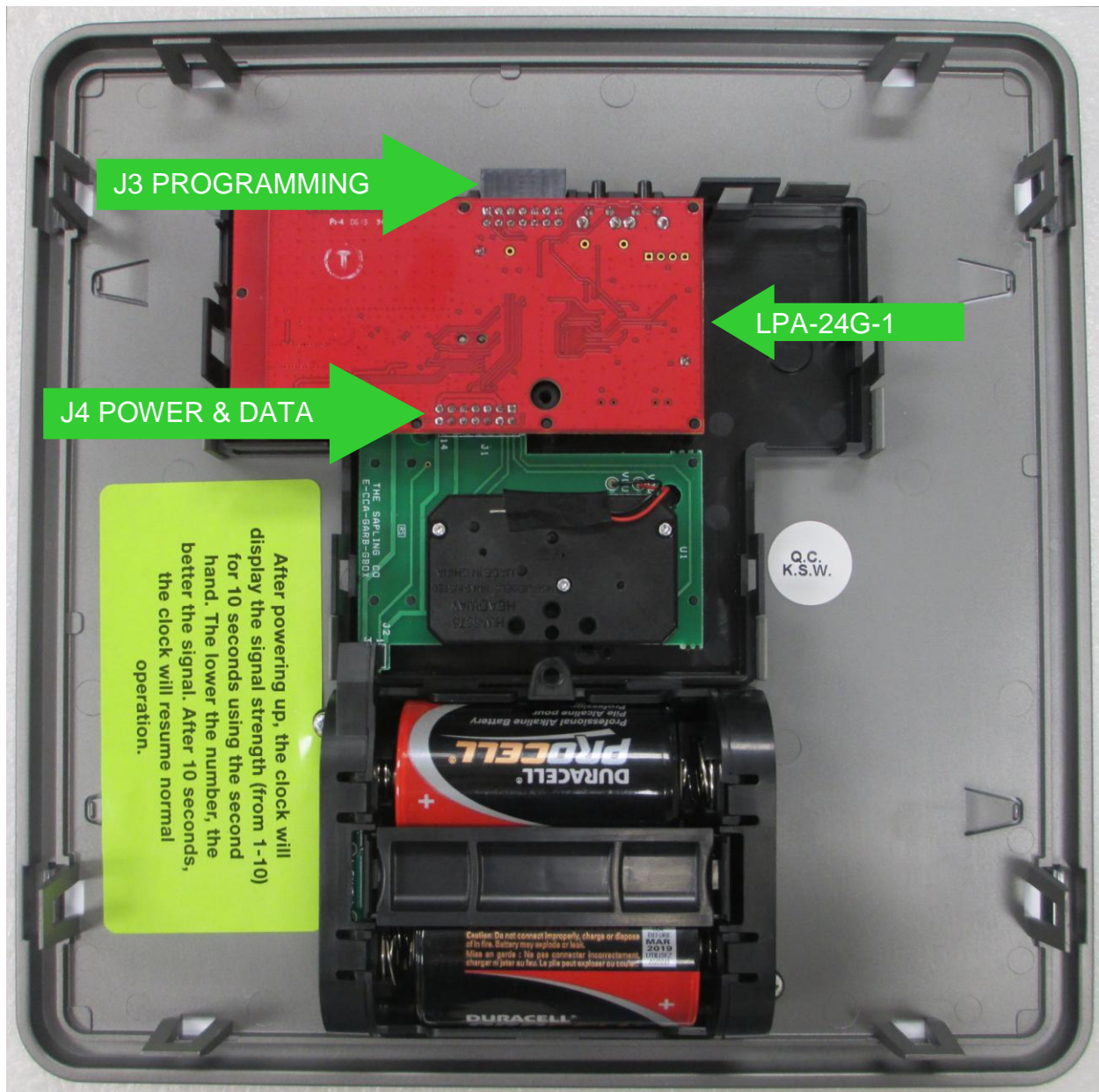


**J4 POWER & DATA**

## Installed

The picture below shows the LPA-24G-1 RF module in an analog clock. It shows the SAL-GBS-09S-0, a battery powered wireless analog clock.

### SAL-GBS-09S-0



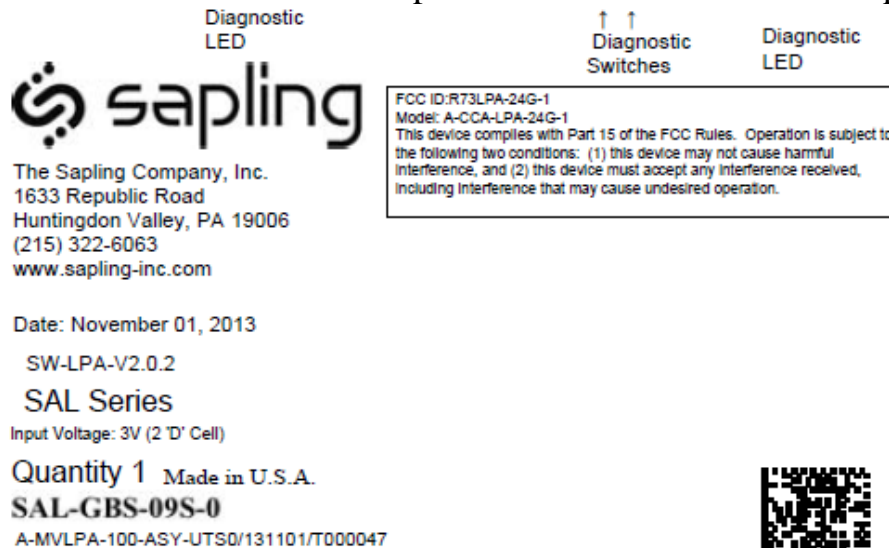
The picture below shows the LPA-24G-1 RF module installed. The picture is the back of an SAL-GBS-09S-0, a battery powered wireless analog clock, and the FCC ID and the Compliance Label.

### SAL-GBS-09S-0



## SAL-GBS-09S-0 Label

The label below is an example of the FCC ID and the Compliance Label.



## Operation

1. The line powered version of the LPA-24G-1 RF module will transmit the time for 240 msec and receive the time for up to 20 seconds once a minute.
2. The battery powered version of the LPA-24G-1 RF module will transmit the time for 240 msec and receive the time for up to 20 seconds every 2 hours.

## FCC Statement:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.**

**Changes Or Modifications Not Expressly Approved By The Party Responsible For Compliance Could Void The User's Authority To Operate The Equipment.**

**Antenna(s)**

**This transmitter must be installed to provide a separation distance of at least 8.1 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter for satisfying RF exposure compliance.**