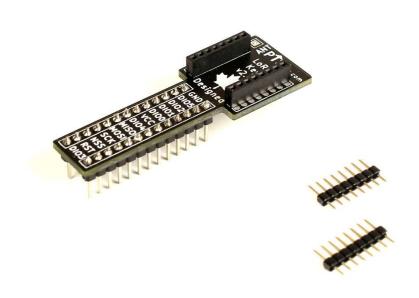# LoRa Key Kit

1 DESCRIPTION

The *LoRa Key Kit* is an unassembled kit that allows for easy prototyping with a common LoRa module. The LoRa module typically as a non-standard pitch and doesn't fit on a breadboard. This makes prototyping with the common LoRa module difficult.

The *LoRa Key* overcomes this issue by not only acting as a pitch adapter from 2.0mm to 2.54mm (= 0.1in), which is a common breadboard pitch, but also by using minimal breadboard space. The long skinny part of the "Key" is so slim that it only takes up a single row on either side of the breadboard.

All of the pins of the common LoRa module are broken out along the key and are available on both sides (left and right). The antenna can be either be connected onto the module or directly onto the *LoRa Key* PCB using the provided ANT pintout. The LoRa module can be soldered directly onto the PCB, but more commonly can be interfaced using 2.0mm pitch matching male and female headers.

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2   DOCUMENT REVISION HISTORY

Current document revision is Rev 0.

3 PRODUCT FEATURES

This section highlights notable features of the *LoRa Key Kit*.

3.1 Compatibility

The *LoRa Key* can accept modules (not included in the Kit) that have two rows of 1x8 pins with a row spacing of 13.3mm and a pin pitch of 2.0mm, as shown in Figure 1. There are several different versions of the LoRa modules, and the user should ensure the module being used matches the pinout shown in Table 1.

Figure 1: Compatible common LoRa module.

Table 1: Pinout of compatible LoRa module.

Top left pin in Figure 1 →

ANT	GND
GND	DIO5
DIO2	REST
DIO4	NSS
VCC	SCK
DIO0	MOSI
DIO1	MISO
DIO2	GND

← Bottom right pin in Figure 1

3.2 Features of the *LoRa Key*

The features of the *LoRa Key* are graphically shown in Figure 2. All the pins are broken out along the long skinny part of the "key". Each pin has two breakouts on the left and right side. The skinny part of the key only takes up a single row of either side of a breadboard, leaving the remaining four pins per row available. A LoRa module can either be directly soldered onto the *Key* using the long soldering pads or connected with 2.0mm pitch male and female headers (recommended). A pigtail antenna can either be soldered onto the module or by using the ANT pinout on the *Key*.
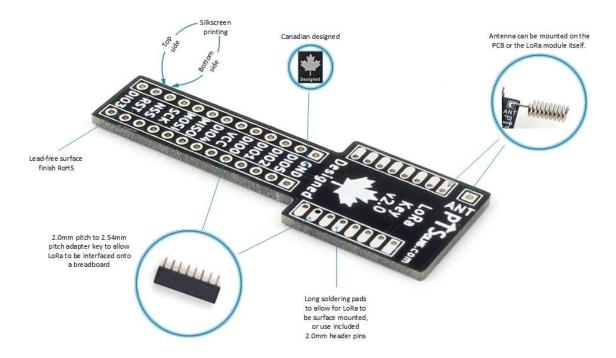

Figure 2: Features of the LoRa Key.

3.3 Mark of Authenticity

Authentic PTSolns PCBs have a black solder mask color and are marked with the "PTSolns" logo in white silkscreen printing. The "Canadian Designed" symbol, consisting of the Canadian Maple Leaf with the word "Designed" underneath, can also be found on the PCB in white silkscreen printing. The "PTSolns" trademark and the "Canadian Designed" symbols are shown in Figure 3.
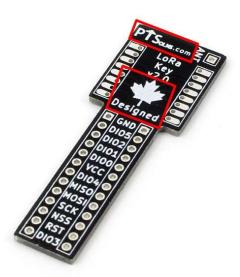

Figure 3: The "Canadian Designed" symbol found on authentic PTSolns PCBs.

4 ELECTRICAL PROPERTIES

Electrical connections made by copper traces are shown in Figure 4. Copper traces have a weight of 1 oz/ft^2.

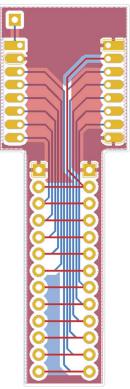*Figure 4: Electrical connections of the LoRa Key.*

5 APPLICATIONS

The typical application of the *LoRa Key* is as shown in Figure 5. The main purpose of the *LoRa Key* is to

1) Act as a pin pitch adapter from 2.0mm to 2.54mm (= 0.1in), and
2) Free up as many rows on a standard breadboard as possible.

The long skinny part of the "Key" is so slim that it only takes up a single row on either side of a common breadboard, leaving the remaining four rows per side available for prototyping.
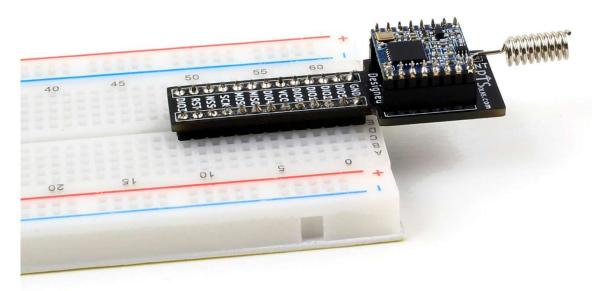

Figure 5: Application example using the LoRa Key.

6   KIT PACKAGE CONTENTS

The following items are included in the *LoRa Key Kit*. **This kit comes unassembled. LoRa module is not included in this kit.**

This kit includes:

- 1pc PCB PTSolns *LoRa Key*
- 1pcs 2.54mm 1x40 pin male header
    - User can easily break the full male header pin into two sections of 1x13 pins.
- 1pcs 2.0mm 1x40 pin male header
    - User can easily break the full male header pin into two sections of 1x8 pins.
- 2pc 2.0mm 1x8 pin female header