



RR123-1H02-612-DK1 Demo Kit User Guide

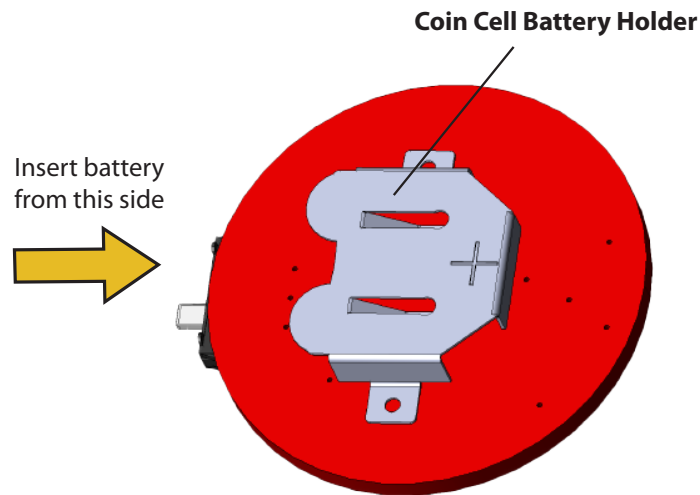


Figure 4: Bottom Side View of the RR123-1H02-612 Demo PCB Board

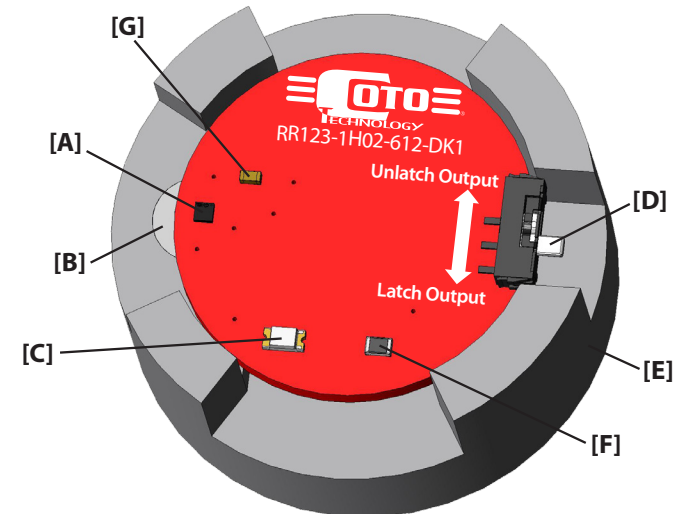


Figure 1: Demo Kit components

- | | |
|--|------------------------------------|
| A: RR123-1H02-612 Sensor-Switch | D: Latch Control Pin Enable Switch |
| B: Activating Magnet | E: PCB Base |
| C: Status LED
(ON when RR123 output HIGH) | F: Current Limiting Resistor (R1) |
| | G: Decoupling Capacitor (C1) |

The RR123-1H02-612-DK1 Demo Kit showcases Coto Technology's **RR123-1H02-612** TMR Sensor-Switch, which is ideal for use in battery-powered magnetic sensing applications requiring the lowest power consumption possible. The demo mimics a small, portable, battery-powered medical device using a magnetic sensor to keep its circuitry in a low-power mode until the device is ready to be used.

For more information, contact Coto Technology via the website (www.cototechnology.com) or by emailing support@cotorelay.com



The RR123-1H02-612 Sensor-Switch features include:

- Voltage range of 1.0-3.6V
- Ultra-low average current consumption of 10nA at 1.0V and 20nA at 3.6V
- Extremely high magnetic sensitivity, with a BOP and BRP of 7 Gauss and 3 Gauss, respectively
- Omnipolar magnetic response with a Push-Pull Output and a sampling frequency of 1Hz, which keeps the current consumption as low as possible
- Ability to source up to 20mA of current via its output pin
- Latch Control Pin to lock RR123's output and prevent activation due to extraneous magnetic fields
- LGA-4 package with dimensions 1.45 x 1.45 x 0.44 mm³

For more details, find the [Datasheet here](#).

The **RR123-1H02-612** can be used either as a **signaling device**, providing a logic HIGH/LOW signal to a Microcontroller to reflect the presence/absence of a magnetic field, or as a **powering device**, controlling the flow of power from a battery to a circuit. In this demo kit, the **RR123-1H02-612** is used to control current flow from a CR1220 battery to a red LED. The schematic of this demo kit can be seen in Figure 2.

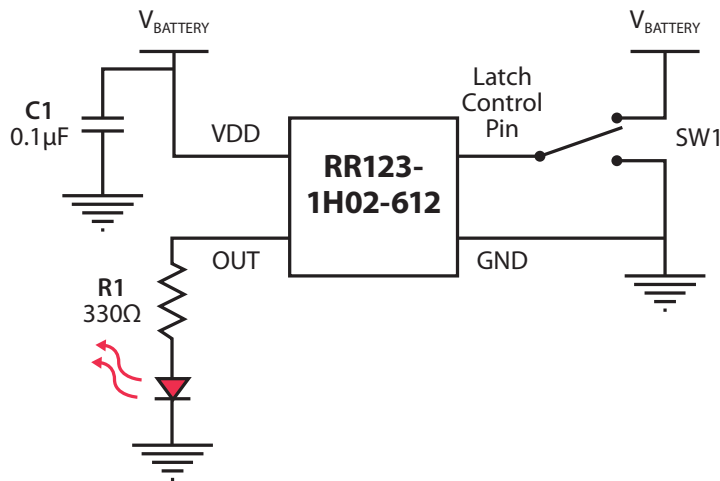


Figure 2: Circuit Schematic for RR123-1H02-612-DK1 Demo Kit

How to Use the Demo Kit:

1. The round PCB containing the **RR123-1H02-612** is placed in a base (E) that has an activating magnet (B) below the sensor (A). The magnet provides the required magnetic field to activate the **RR123-1H02-612** and drive its output to GND, preventing the LED from being powered.
2. When the PCB is removed from the base (see Figure 3), the magnetic field will decrease at the **RR123-1H02-612**, causing its output to be connected to VDD and allowing current to flow to the Status LED (C), turning it ON. Placing the PCB back into the base will make the LED turn back OFF. Note: given the low sampling frequency (1Hz) of the **RR123-1H02-612**, the LED can take a second to turn ON/OFF.
3. The slide switch (D) on the right-hand side of the PCB controls the RR123-1H02-612's Latch Control Pin. When enabled (switch set to "Latch Output"), the **RR123-1H02-612** will "lock" the output in whatever state it is currently in, and it will stop responding to the presence or absence of a magnetic field. Once disabled (switch set to "Unlatch Output"), the **RR123-1H02-612** can once again respond to the presence/absence of a magnetic field. For more details on this functionality, please see sections **7.4** and **7.5** of the **RR123-1H02-612** Datasheet.

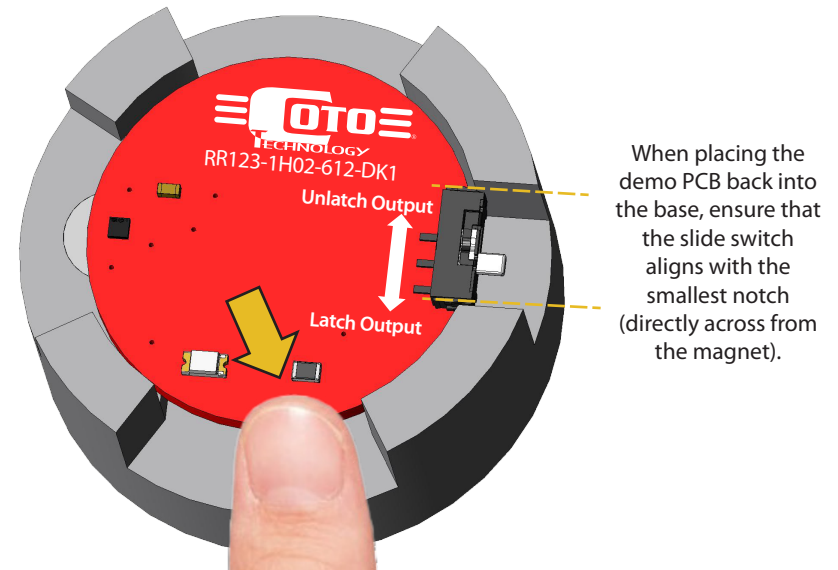


Figure 3: For easy removal/insertion of PCB from/into base, press down on bottom of PCB.