

Introduction

Electric rice cookers are popular appliances that are used for cooking rice. These are pressure cookers that rely on a properly sealed compartment which maintains a high pressure. The pressure built up within the rice cooker compartment can be high enough to blow open the cooker lid if the lid is not properly locked in place when closed.

The position sensing lid lock ensures that the lid is securely locked in place.

Solution

A reed switch is used as a position sensor to detect when the lid is properly closed in place.

Table 1: Suggested Products

Suggested Products
FLEX-14 Reed Switch
MDCG-4 Reed Switch
MDSM-10 Reed Switch
59170 Overmolded Reed Switch
59135 Reed Sensor
59145 Reed Sensor

FEATURES AND BENEFITS:

- Switch activation does not require physical contact
- Switch contacts are within a hermetically sealed capsule
- Resistant to moisture, dust, and other foreign objects
- High operating temperature
- Reliable switching
- Long lifetime

How It Works

A reed switch is a magnetically operated switch that is normally open when there is no magnetic field present within its defined sensing or “activation” range. When a magnetic field is present in proper alignment and of sufficient strength, the contacts of the reed switch will close and complete the circuit. If the magnetic field is removed, out of proper alignment, or weakened in strength, the contacts of the reed switch will open again, disconnecting the circuit.

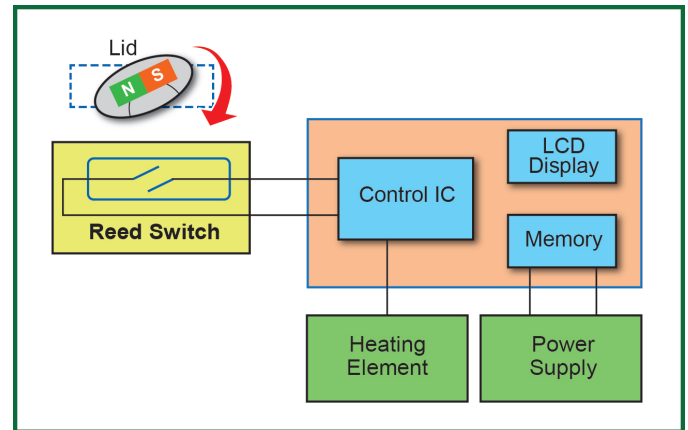


Figure 1: Block Diagram of Application

A permanent magnet is embedded within the handle of the rice cooker lid and is used to provide the magnetic field to operate a reed switch located within the electronic assembly in the rice cooker lid. When the lid is not in the “locked” position, the magnet in the handle is not properly aligned to the reed switch, thus keeping the reed switch contacts open. The electronic control unit is signaled that the lid is not properly closed and will notify the user of this. Only when the handle is in the “locked” position, the reed switch contacts close and signals the control unit that the lid is properly closed.

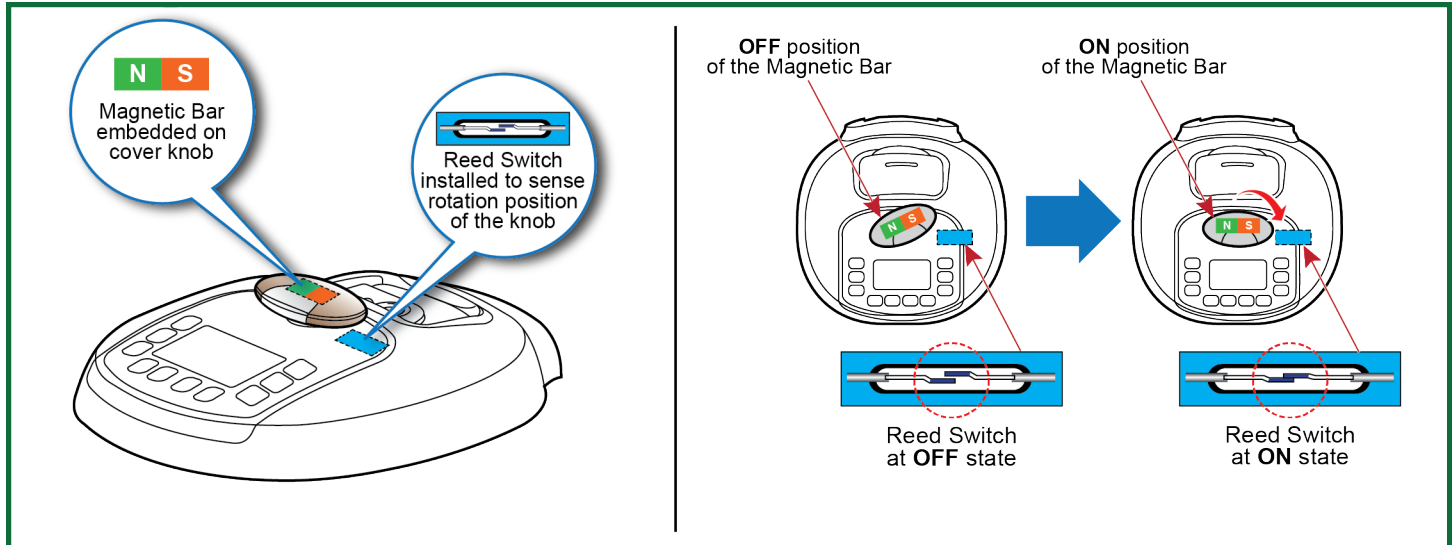


Figure 2. Mechanical Structure- Position Sensing in Rice Cooker Lid Lock

Beyond Sensing, Littelfuse[®] Offers Circuit Protection Solutions

In addition to sensor products, Littelfuse offers the world's broadest and deepest portfolio of circuit protection and power control solutions.

Littelfuse recommends the following products for use in this application:

Table 2: Circuit Protection and Power Control Solutions

Application Example	Product Series
Power Control	
Heater AC Power Control	Q60xxxH6 Thyristors
Circuit Protection	
AC Mains	TMOV, LA, UltraMOV Varistors
	3AG, 5x20mm Fuses
	Holders, Blocks, Clips
Touch Screen/Display Panel	SP1001, SP1003 Diode Arrays
	Multilayer Varistors



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