

## Sports, Recreation and Hobbies

The sports and fitness industry has seen a lot of changes lately by their move from using analog instruments and gauges to intelligent electronic controllers which give the user a lot more information on calories burnt, distance run etc. Reed sensors are used in a variety of sports equipments for passing on signals to the controller which in turn do the processing and give the user intelligent outputs.

With the advent of intelligent toys and engineering kits, reed switches are also used by hobbyists to make LEGO-Mindstorms® sensors to sense rotation, position and temperature. Commercial grade reed switches can be used in dolls and toys for position sensing.

### Electric Fishing Reels

Electric fishing reels are equipped with reed sensors which generate pulse on rotation of the handle. The number of pulses generated are equated to the length of the fishing line which is also the depth of the water. The advantage of using the reed sensor is that the fishing reel once immersed into the water can be left unattended, and on a bite, the reed sensor generates a signal which turns a buzzer on. Suitable products: **MS-10x** miniature PCB mountable reed sensors, and goal post formed **MM-1018** and **RM-1318** reed switches.

### Treadmill speed and gradient sensing

The speed of the belt is determined by positioning a reed sensor near the pulley driving the belt a small flexible magnet on the belt itself. Apart from speed sensing, the gradient of the tread mill is adjusted by raising the front wheels. Locating reed sensors in a few strategic positions on the arms of the front wheels can also give information to the controller about the angle of the gradient. Suitable products: **MS-225** threaded sensors, and **MS-216** and **MS-214** cylindrical reed sensors.

### Bicycle and exercise cycle speedometers

A magnet can be attached to one of the spokes in the wheels, and a reed sensor can be mounted near the break shoe to sense the pulses and generate a square wave. The onboard electronics can use these square pulses to calculate speed of the cycling. Just as in conventional speedometers, these pulses can also be used to indicate the distance travelled on a digital meter. Suitable products: **MS-216** and **MS-214** miniature cylindrical sensors.

### Jogging and walking meters

Pedometers are waist belts which can calculate the number of paces when a person is walking or jogging. A Reed switch and a magnet is mounted inside the pedometer, and undulation of the hips causes the reed switch to pulse. These pulses are counted and displayed in the counter along with the time. Certain pedometers take inputs of the jogger's height, weight, and length between each pace etc. and use the reed switches outputs to calculate calories burnt. Suitable products: **MS-10x** miniature PCB mountable reed sensors, **R3** miniature SMD reed sensors, and goal post formed **MM-1018** reed switches.

### LEGO® Sensors

Reed switches can be built into LEGO bricks to sense position and rotation. Position sensors can be built in normally open (NO), and normally closed (NC) types. Rotational sensors can be built with two reed switch and many magnets on the rotating shaft. Pull down resistors are connected to each of the reed switches so that four different voltage level outputs can be given to the RCX. Suitable products: **UM-0018**, **MM-1018** and **RM-1318** miniature reed switches with cropped leads.

### Electronic Board Games

Computerized board games use reed switches under the boards and magnets under the pieces to trigger LEDs on each square to indicate to the players which moves are allowed and which are not. The LEDs are also used in single player mode for letting the player know which move the controller wants to make, and also for the controller to recognize the player's moves. Suitable products: **MM-1018** and **SM-1322** reed switches welded to a wire for vertical mounting.

### Lap counter in slot car racing tracks

Slot car racing tracks usually count the number of laps by having a small section of the track without power. Every time a car goes over this section, power consumption takes a dip and this is used as a lap counter. Instead of losing power to the tracks, reed sensors can be used on the track with all the cars having magnets. Suitable products: **MS-10x** miniature PCB mountable reed sensors and goal post formed **SM-1322** reed switches.

### Signalling modules in model train tracks

Reed switches are placed under train tracks near a junction and each train is fitted with one magnet. The signalling of the red and green lights can now be controlled after a train has passed the signalling point. These outputs which control the lights can also be given to reed relays to actually cut off power to a train when a red light is on. Suitable products: **MS-10x** miniature PCB mountable reed sensors and goal post formed **SM-1322** reed switches.

Due to continual improvement, specifications are subject to change without notice

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### Electronics and Science Kits

Reed switches are used in many science and electronic kits for experimenting on various phenomena. In motor kits for example, a reed switch is used to demonstrate how exactly a brush less motor works. Two magnets are mounted diametrically opposite each other on the rotor shaft. A reed switch and an electromagnet with an opposite polarity than the rotor magnets are placed just near the two rotor magnets and connected in series to a power source. When one of the magnets is near the reed switch, the electromagnet is energized and repels the other magnet away which also cuts off the magnetic field to the reed switch. The momentum moves the magnet near the reed switch again and this works the motor. Suitable products: [LV-1925](#) and [IL-2022](#) standard size reed switches.

### Gliders and model Airplanes

Reed sensors are very light devices and can be used in model airplanes, helicopters and gliders. Radio controlled gliders and model planes use reed sensors in the flap areas to sense whether the flaps have been deployed properly. The same principle can also be used to check if the under carriage is down so that the model can be landed safely. Suitable products: [R3](#) miniature SMD reed sensors, and [MS-212](#) miniature cylindrical sensors.

### Musical Greeting Cards

Ultra miniature reed switches can be used in electronic greeting cards with magnets to play a tune whenever the card is opened. Compared to the additional circuitry for the musical tones and the speaker, the reed switch bulk is much less. Normally open or normally closed versions can be used. Suitable products: [MS-212](#) miniature cylindrical sensors, [R3](#) miniature SMD reed sensors, and [UM-0018](#) ultra-miniature reed switches.

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