

The REV Robotics Magnetic Limit Switch is a three-sided digital hall effect switch. The three internal hall effect elements (one on top, two on the sides) are connected in parallel so if any one of them is triggered the sensor will report as triggered.

Hall effect sensors detect the presence of a magnetic fields. The REV Magnetic Limit Switch is an omnipolar momentary switch; it will trigger when there is sufficient field strength of either magnetic pole detected.



## SPECIFICATIONS

**Sensor Type:** Digital, Active-low

**Voltage Range:** 3.3V - 5.0V

**Signal:** n & n+1

**Magnetic Polarity:** Omnipolar (both north & south)

**Typical Trigger Distance\***

**Top:** 10mm

**Side:** 5mm

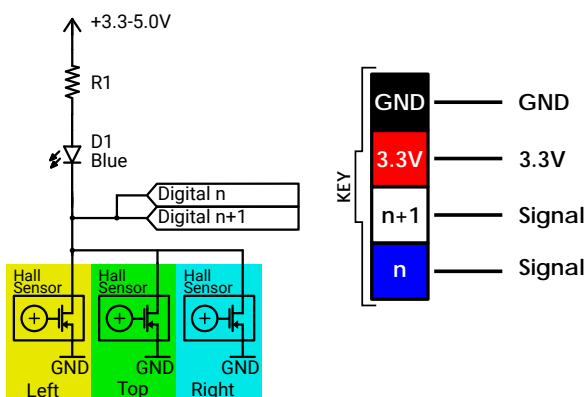
**Typical Hysteresis:** 5mm

**Typical Included Magnet Strength:** 4300G (0.43T)

## OUTPUT STATES

Magnetic Field	Output Voltage		LED State
	n	n+1	
North Pole	0V	0V	On
South Pole	0V	0V	On
Insufficient Magnetic Field	V <sub>IN</sub>	V <sub>IN</sub>	Off

## SCHEMATIC DIAGRAM

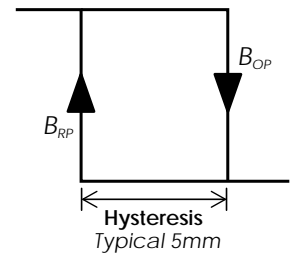


## APPLICATION INFORMATION

The REV Magnetic Limit Switch comes with two mountable magnets. Because this sensor does not require a contact interface, the magnet can also be soft mounted almost anywhere with just tape or glue.

The strength of the magnetic field determines the maximum distance the magnet can be from the sensor and still be detected. Alternate (stronger or weaker) magnets can easily be used to change the trigger range of this sensor.

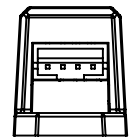
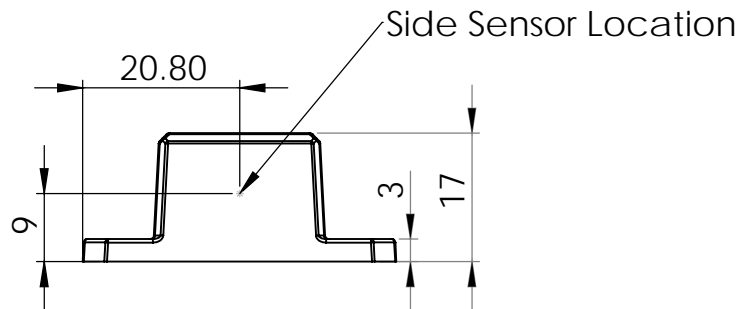
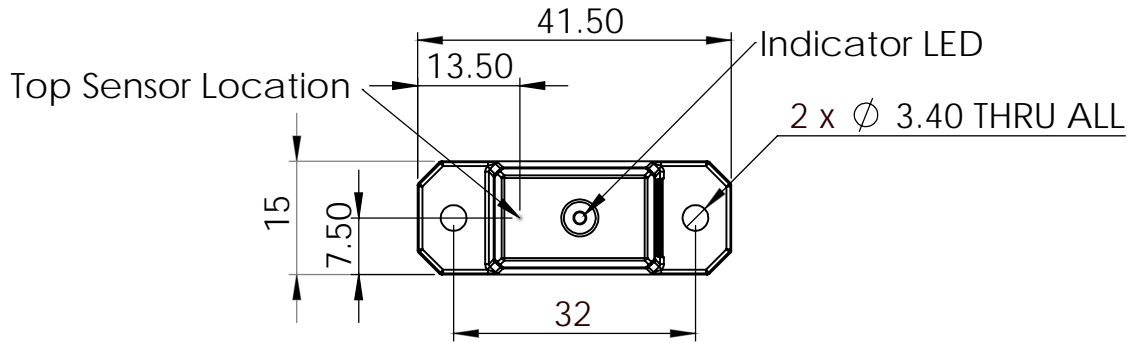
When designing a system using The REV Magnetic Limit Switch it is important to consider in the impact of hysteresis. When the magnetic field approaches the Magnetic Limit Switch, after the field strength



increases enough that it crosses the rising trigger point ( $B_{OP}$ ) the sensor triggers. As the magnet is then moved away from the sensor, the magnetic field strength falls but the sensor remains in the triggered state until the field falls below the falling trigger level ( $B_{RP}$ ). The difference between these two points is the hysteresis.

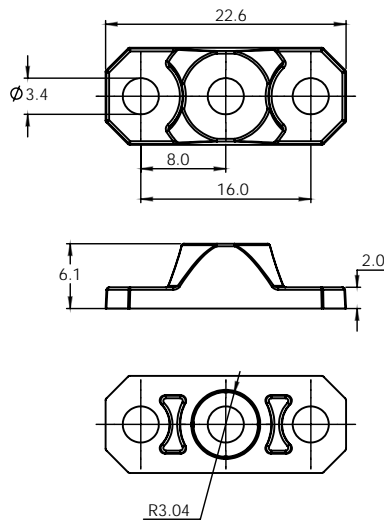
For a simple system like stopping an arm at the end of range of motion, the hysteresis might not play much of a role, but for creating one or more stop points on a linear elevator, this may factor into the software design.

# MAGNETIC LIMIT SWITCH MECHANICAL DRAWING



ALL DIMENSIONS ARE IN MILLIMETERS

# MOUNTABLE MAGNET MECHANICAL DRAWING



ALL DIMENSIONS ARE IN MILLIMETERS