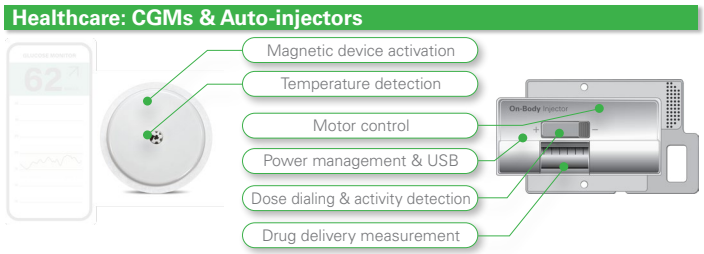
TMR Switches

TMR Switches Overview

Tunneling Magnetoresistance (TMR) is revolutionizing magnetic sensing by delivering ultra-low power consumption and unmatched sensitivity–perfect for smart meters, wearables, and IoT devices. Littelfuse's latest TMR switches offer omni- polar magnetic detection and 200 nA ultra low power consumption, simplifying design and boosting reliability in harsh environments. These innovations outperform traditional Hall-effect sensors by offering superior thermal stability, wider voltage ranges, and higher accuracy.

Features & Benefits of TMR Switches

- High precision and ultra-low power consumption
- Low switching points for high sensitivity
- High tolerance to external magnetic field interference
- Ultra low power consumption at 200 nA
- Frequency range 50–1000 Hz
- Hall-effect eeplacement: outperforms legacy Hall Sensors with better efficiency, sensitivity, and voltage range



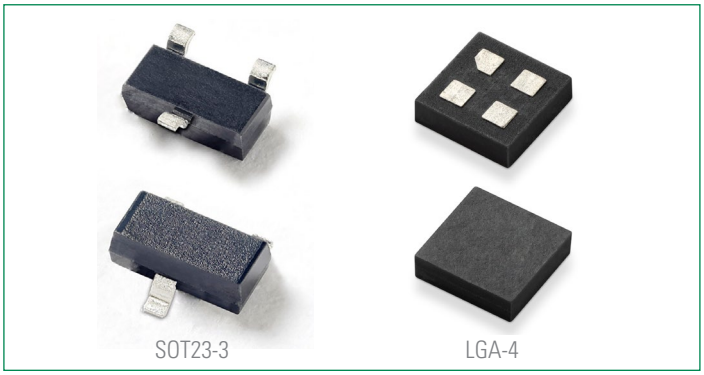


Figure 1. TMR Switches

Applications

Healthcare:
- Continuous glucose meter
- Auto-injectors or drug delivery pens

Industrial:
- Automation
- Robotic

Transportation:
- Off-highway vehicles
- E-bikes, two-/three-wheelers

Consumer electronics:
- Robotic and portable devices

Building Solutions:
- Smart gas and eater meter
- Door and windows position detection

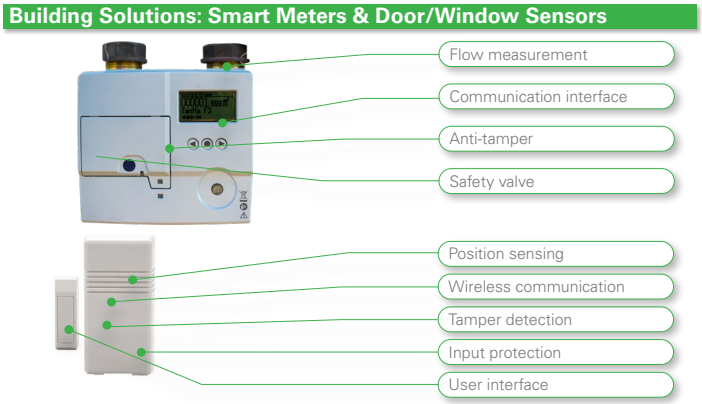


Table 1. Summary of Littelfuse TMR Switch Portfolio

Function	LF PN	Series	Switch Type	Bop Threshold (Gauss)	Brel Threshold (Gauss)	Vsupply Current (uA)	Frequency Response (Hz)	Min. Supply Voltage (V)	Max. Supply Voltage (V)	Output Type	Sensing Axis	Operating Temperature	Packaging
Switch	LF11115TMR	Nanoampere	Bipolar	17	-17	0.2	50	1.8	5.5	Push Pull	X	-40° to 125°C	SOT23-3
Switch	LF21115TMR	Nanoampere	Omnipolar	17	12	0.2	50	1.8	5.5	Push Pull	X	-40° to 125°C	SOT23-3
Switch	LF21215TMR	Microamp High Frequency	Omnipolar	17	10	1.5	1000	1.8	5.5	Push Pull	X	-40° to 125°C	SOT23-3
Switch	LF21235TMR	Microamp High Frequency	Omnipolar	17	10	1.5	1000	1.8	5.5	Push Pull	Z	-40° to 125°C	SOT23-3
Switch	LF22214TMR	Microamp High Frequency	Omnipolar	14	10	1.5	1000	1.8	5.5	Open Drain	X	-40° to 125°C	SOT23-3
Switch	LF32115TMR	Nanoampere	Unipolar	17	13	0.2	50	1.8	5.5	Open Drain	X	-40° to 125°C	SOT23-3
Switch	LF11215TMR	Microamp High Frequency	Bipolar-Latch	17	-17	1.5	1000	1.8	5.5	Push Pull	X	-40° to 125°C	SOT23-3
Switch	LF21112TMR	Nanoampere	Omnipolar	7	5	0.2	50	1.8	5.5	Push Pull	X	-40° to 125°C	SOT23-3
Switch	LF21177TMR	Nanoampere	Omnipolar	30	21	0.16	50	1.8	5	Push Pull	X	-40° to 85°C	LGA-4
Switch	LF21173TMR	Nanoampere	Omnipolar	9	6	0.16	50	1.8	5.5	Push Pull	X	-40° to 85°C	LGA-4