Automotive Sensor Products

Linear Position Sensor – Hall



Figure 1: Linear Position Sensor

Features

- Magnetically operated position sensor
- Linear PWM outputs
- Programmable sensor custom option
- Separate magnet assembly as actuator
- Large air gap operating
- Non-contact measuring

Benefits

- Robust construction makes this sensor well suited to harsh environments
- Magnetically operated non-contact sensing gives excellent life and reliability
- Ability to customize programming output states to customer needs

Applications

- Transmission fork position
- Linear stroke

General Description

The Hall Effect Linear Position Sensor detects the position of each fork in a DCT transmission. Each position sensor operates in a pair with one magnet actuator. There are four pairs in total to detect the fork position of gears 1~7 and reverse position.

Operation

Basic Principle

The sensor is a linear PWM output sensor which detects the position of moving parts. After programming, the sensor will output a linear PWM signal to reflect the position of the magnet assembly actuator.



Figure 3: Linear Position Sensor

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Packaging Options

Custom packaging can be provided to meet any need, please contact Littelfuse Engineering for details.



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Functional Characteristics

Parameter				
Туре				
Hall Effect Sensor		Programmable		
Output		Linear PWM Duty Cycle		
Electrical				
Voltage Supply	Max.	9.3Vdc		
	Min.	8.7Vdc		
DWM Output Signal Current	Low	4.0 ~ 8.0mA		
	High	12.0~ 16.5mA		
PWM output Frequency		420~540Hz		
Magnet to Sensor Air Gap	Max.	2.3mm		
	Min.	4.7mm		
Magnet Linear Sensing Range		-10~+10mm		
Repeatability Across Temp Range		0.5%FS		
Sensor Output Performance (typical)	Air Gap	-10.0mm	+10.0mm	
	2.3mm	15%DC	85%DC	
	3.5mm	25%DC	75%DC	
	4.7mm	33%DC	67%DC	
PWM Output Signal Clamps	Min.	3%DC		
	Max.	97%DC		

Environmental/Mechanical

Temperature	Operating	Celsius	-40° C to +140°C
	Storage	Celsius	-55°C to +150°C
Mechanical Shock	15ms ½ Sine	Max.	25g
Random Vibration	12 – 2000Hz	Max.	RMS MAX 4.2g

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