

LINEAR POSITION NON-CONTACT HALL EFFECT



The output of a linear hall sensor is a voltage which changes in proportion to the shaft extension. A constant voltage is required across the supply and ground wires of the sensor. The sensor consists of a Hall Effect element, and a shaft which houses a magnet. When the magnet moves within the sensor, the change in magnetic field changes the output voltage. The gain, offset and thermal drift of each channel is digitally compensated to minimise errors. The gain, offset and compensated temperature range can be modified electronically at the factory. The shaft is sealed to keep out dirt and dust but is not captive in the sensor body.

Various stroke lengths are available, up to a maximum of

40mm.				
Electrical		Mechanical		
 Electrical Electrical stroke as specified in the order details Maximum Electrical stroke 40mm (for linear output) Supply current 10mA (max) Output is proportional to supply voltage. The following values assume a precision 5.00V supply: Zero offset (shaft within housing) 0.5±0.05V (@25 °C) Full Scale output (shaft extended) 4.5±0.05V (@25 °C) Supply voltage not to exceed 8.5V Independent non-linearity ±1% typ, ±2% max Thermal shift¹ <±0.05%FS/K Insulation resistance >100Mohm @ 500Vdc Hysteresis due to magnet/shaft rotation ±4% FS typ The output decreases as the shaft enters the housing (this can be reversed) 		 40mm. Mechanical Body aluminium alloy, hard anodised and dyed black Shaft stainless steel Mechanical stroke as specified in order details Shaft is not captive Weight (including cable) included in order details Polyester boss for strain relief to the sensor body Design and manufacture is in-house, so if our existing designs do not suit your application, we can provide cost effective customised parts to suit even the most demanding application. No engineering charges are made for simple modifications such as customer specific connectors, cable protection and cable lengths. 		
(this can be reversed – please consultancy service if this is of in	e contact our technical iterest).	contact our technical consultancy service who will be		
¹ Over compensated temperature range		pleased to help.		
		Environmental		
Cable and Connection Definition		 Shaft sealed by wiper seal 		
 24 AWG un-screened cable 		Resistant to standard motorsport fluids		
• Cable length is shown on the	order details but any	Maximum humidity 100%		
length is available on request		• Operating temperature -40 to +170 °C		
 Various automotive and military are available 	y standard connectors	 Compensated temperature range +20 to +150 °C Viton jacketed cable 		
Connection		Vibration 50 to 2500Hz @ 40g 8hrs per axis		
Red wire Pin A P	Pin 1 Supply			
White wire Pin B P	Pin 2 Ground	The sensor may be permanently damaged if the shaft is		
Green wire Pin C P	Pin 3 Signal	exposed to strong magnetic fields. During operation, the sensor should be kept clear of magnetic fields and ferro-		
Application		magnetic materials.		
Clutch and Gear selector drum position				

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ISOMETRIC VIEW



NOTES:

1. SHAFT SHOWN IN MID STROKE POSITION

Stroke Length	Weight	Cable Length	Order Code
12.7mm	80g	1000mm	O 030 320 009 043

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