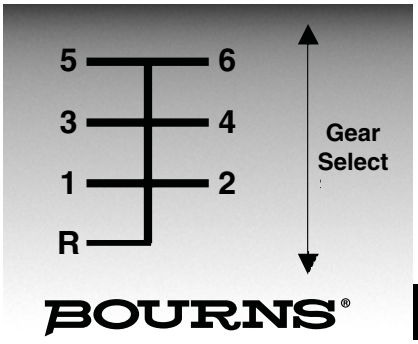


Features

- Non-contacting sensor technology
- No aging effects using MR technology
- Sensor can be placed outside of the gearbox
- Sensor range up to 50 mm (1D) and up to 25 mm (2D)
- 1D and 2D measurement
- Electronic calibration
- Linear and rotary option available

Applications

- Gear position and shift detection
- Gear fork position (dual clutch transmission)
- Clutch actuator position
- Drive mode detection (PRND)
- Neutral position detection (manual gearbox)
- Start/stop positional feedback

Linear Gearbox Position Sensor

Introduction

Depending on the configuration of the Bourns® Linear Gearbox Position Sensor, there are several uses for the device in a modern transmission.

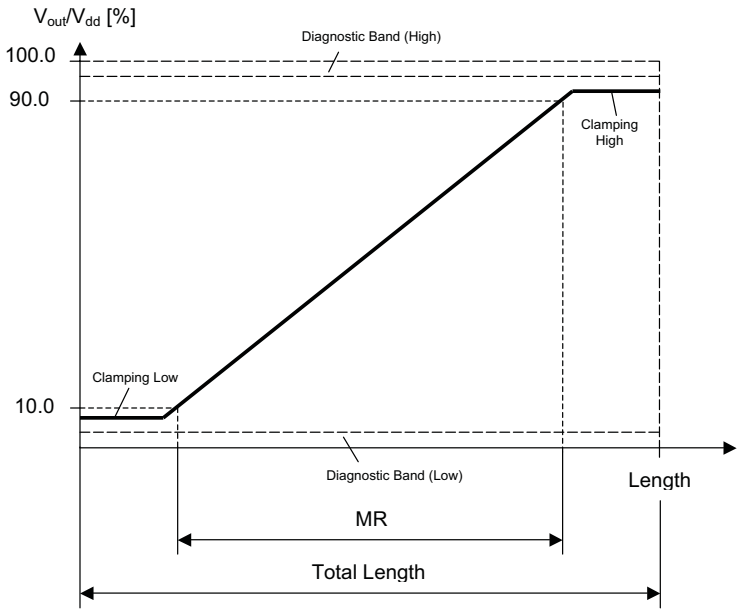
In Dual Clutch Transmissions (DCT), the sensor may be used for detecting the clutch actuator piston position, the fork lever position, and in 2D mode for detecting both the selection and engagement of gears. One feature of the Bourns® Linear Gearbox Position Sensor for DCT applications is improved resolution which is critical for the accurate pre-selection of each gear.

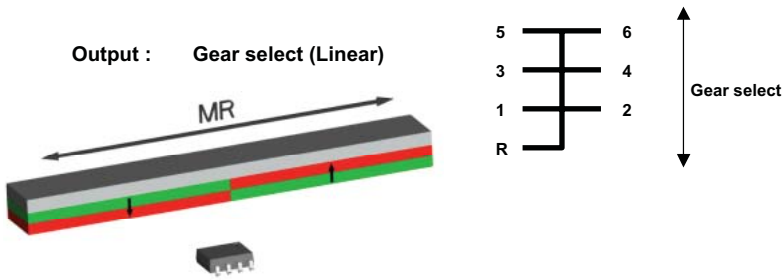
In manual transmissions, the sensor can be used for stop/start applications when used to sense either the clutch position or the neutral position of the gearbox. In manual shift gearboxes, the vehicle dashboard may feature a recommended gear indicator to improve fuel consumption; in this case the linear sensor can be used to detect gear position.

The sensor can be placed outside of the gearbox if the housing is cast from a non-magnetic material; designs are also available to place the sensor inside the gearbox. Magnets are typically mounted on the gear lever or each gear fork and the sensor picks up the relative change in position.

The sensor can measure in one or two dimensions. 2D sensing is important where both the selection (a rotary movement) and detection (a linear movement) are necessary.

Linear Gearbox Position Sensor - 1D Linear Sensor





Typical Parameters

Total Length	2 x MR + X mm
Air Gap Magnet Sensor	5~8 mm typical
Operating Temperature	-40 to +125 °C
Protection Degree	TBD*
Linearity	± 2.0 % MR
Resolution	< 0.1 % MR
Ratiometry Error	± 0.15 % V_{dd}**
Temperature Drift	0.5 % V_{dd} typical
Supply Voltage	5 ± 0.25 V
Supply Current	< 30 mA
Output Modes	Analogue, PWM

* Application Specific
** Analogue mode only
For higher temperature range or improved accuracy applications, please contact Bourns engineering.

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