# Linear Position Sensors

## LIN Sensors – Kit with magnet

Thin, programmable, non-contact magnetic position sensors with dual outputs available

### Description

The LIN Series sensors are non-contact linear position sensors with one or two independent outputs. The sensors operate through the use of Hall Effect technology with magnetic fields generated by permanent magnets. They provide a linear change in voltage output (ratiometric to the input voltage) corresponding to a linear displacement of the actuator magnet.

The included actuator magnet is specifically paired to the sensor and is required to assure proper operation. Other magnets may yield less than optimal performance.

### Features

- Easy setup and robust monitoring with M4 screws
- Dual independent (redundant) outputs assure high reliability
- Custom programming available for: range, slope, PWM output
- No mechanical interface means no parts to wear out or jam
- Comes with 20 AWG 305 mm (12”) discrete wire leads or harness with connector
- RoHS Compliant
- IP68*
- Suitable for wide air gap applications
- Compliant to industrial/automotive EMC/EMI/ESD directives

### Typical Applications

- Hydraulic valves
- Hydraulic controls
- Electric drives
- Pneumatic controls
- Zero-contact encoder alternative
- Gear selection / shifting position

### Environmental Specifications

| | |
|---|---|
| Operating Temperature | -40 °C to 140 °C (-40 °F to 284 °F) |
| Ingress Protection | IP68* |

*Contact ZF for details on testing conditions

### Electrical Specifications

| | | |
|---|---|---|
| Input | | |
| Supply Voltage | Maximum Overvoltage | Reverse Battery Protection |
| 5.0 VDC ± 10% | 16 VDC | 12 VDC |
| Output Signal | | 0.5 – 4.5 VDC (with nominal input) |
| Input Current | Single output | 8 mA typ., 10 mA max. |
| | Dual output | 16 mA typ., 20 mA max. |
| Resolution | | 12 bit |
| Accuracy, overall | | ±2% Full scale |
| Output Linearity | | ±1%Full scale |

### Mechanical Specifications

| | |
|---|---|
| Measuring Range | Up to 45 mm |
| Air Gap** | 4.5 mm (0.18”) |
| Maximum Magnet Misalignment | 2 mm (0.08”) |

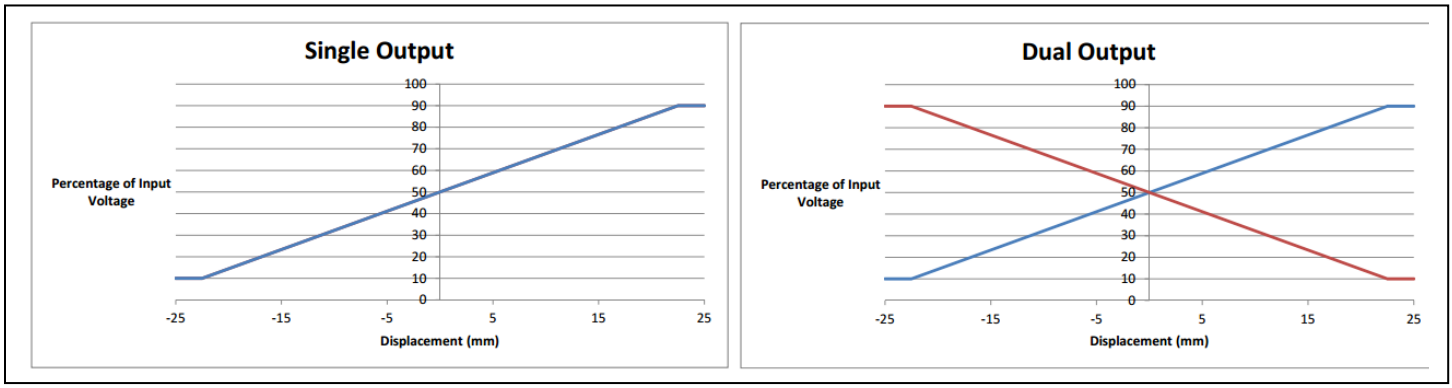
**Output is calibrated to meet spec within air gap shown; any variation will affect performance

### Products

| Part Number | Output | Interface |
|---|---|---|
| LIN-11HAW1 | Analog single | 20 AWG x 305 mm (12") discrete wires |
| LIN-21HAW1 | Analog dual | 20 AWG x 305 mm (12") discrete wires |

### Typical Output vs. Linear Displacement (as percentage of input)

https://switches-sensors.zf.com/




## Dimensions mm (inches)