



Position Sensing

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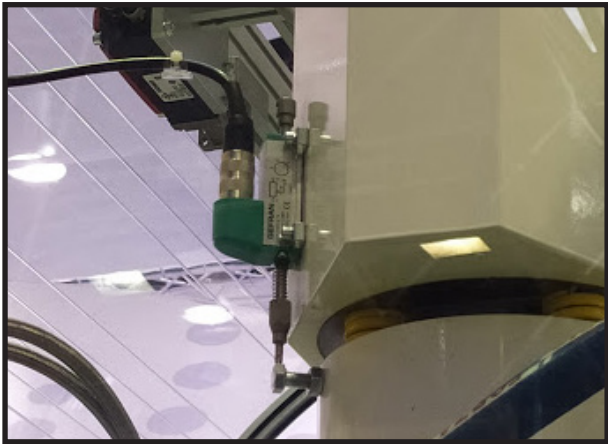
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Linear Position Sensors in Stock and Ready to Ship!

What is a linear position sensor?

Linear position sensors are devices that connect to an object or piece of machinery and convert the linear displacement of the object into an electrical signal that is proportional to the object’s displacement. Linear position sensors are available in many mechanical styles and mounting configurations, with a variety of measurement (stroke) lengths. Types of linear position sensors include linear potentiometers that convert the linear displacement to a resistance value via the use of an internal variable resistor or linear position transducers that convert the linear displacement to an analog signal such as 0-10 VDC or 4-20 mA. The latter are more specialized and used when higher accuracy is required. Linear encoders provide high-speed pulse information to motion systems to provide closed loop performance and position feedback.



Why buy a linear position sensor from us?

There are several distinct advantages to purchasing a linear position sensor from AutomationDirect:

Price

As with all of our product lines, our prices are often well below the list prices of traditional automation suppliers. Our direct business model allows us to operate more efficiently than other suppliers and pass the savings on to you.

Quality

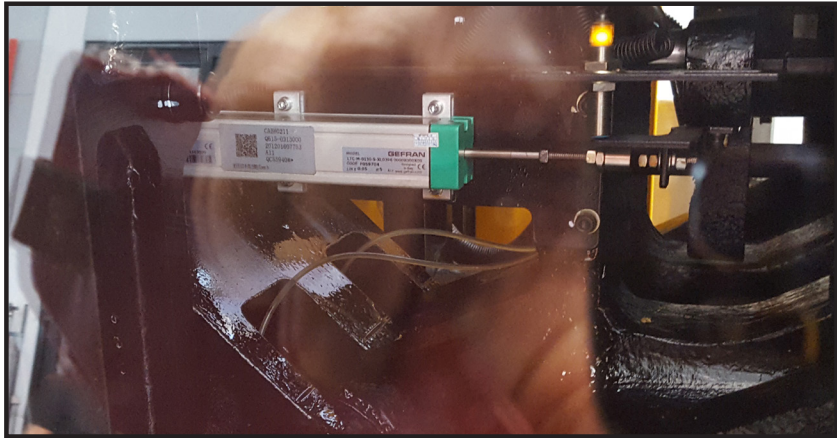
Our linear position sensors carry a 1- or 3-year warranty, and have a 45-day money-back guarantee. If you are not satisfied with your purchase for any reason, send it back, and we will refund your money.

Service

We give you options for self-service but at the same time, we are there when you need us. You can place your order online or call/email our Customer Service. Have a technical question about one of our products or need help gathering up a bill of materials for one of your projects? You can call our free Technical Support.

Selection

We offer a wide variety of styles and sizes for our linear position sensors. Whether you would like a standard cylindrical style potentiometer, a rectangular bodied style, a rodless style, draw wire, or push-in style, we have it. Our linear position sensors come in many stroke lengths and offer a variety of mounting options.



Linear Potentiometers

Linear potentiometers convert linear displacement of an object to a resistance value with the value being proportional to the change in displacement.

GEFRAN Linear Potentiometers

BEYOND TECHNOLOGY

PZ12 Series Flange Mount Fixed Slide

Gefran PZ12 series flange mount linear potentiometers come with a half-inch anodized aluminum housing and an M4 threaded stainless steel shaft.

- 25 to 200 mm stroke lengths
- 1 to 8 kΩ resistance options
- IP60 protection rating

Starting at
\$157.00
(PZ12-F-0025-L)

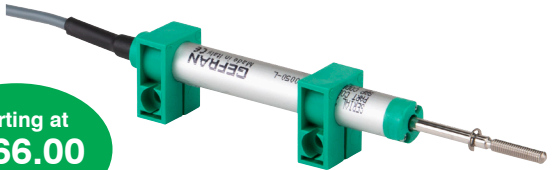


PZ12 Series Bracket Mount Fixed Slide

Gefran PZ12 series bracket mount linear potentiometers are available in a half-inch anodized aluminum housing with an M4 threaded stainless steel shaft.

- 25 to 200 mm stroke lengths
- 1 to 8 kΩ resistance options
- IP60 protection rating

Starting at
\$166.00
(PZ12-S-0025-L)



LT Series Rectangular Fixed Slide

Gefran LT series linear potentiometers feature a rugged rectangular mechanical drive in an anodized aluminum housing with an M6 threaded stainless steel shaft.

- 50 to 400 mm stroke lengths
- Mounting grooves provide a good alternative to brackets
- 5 kΩ resistance
- IP60 protection rating

Starting at
\$160.00
(LT-M-0050-S-L)



PK Series Rodless Slide

Rodless style linear potentiometers work well in applications where installation space is at a premium such as plastic injection presses.

- 400 to 1000 mm stroke lengths
- Mounting grooves to provide mounting options not requiring brackets
- 10 kΩ resistance
- IP40 protection rating

Starting at
\$272.00
(PK-M-0400-L)



Linear Potentiometers (cont.)

GEFRAN Linear Potentiometers
BEYOND TECHNOLOGY

PY2 Series Spring-Loaded Slide

Gefran PY2 series spring-loaded linear potentiometers feature a push-in style ball tip actuator to measure the change in displacement when pressed. The spring-loaded actuator returns to the zero position when pressure is removed. Their shorter stroke length and high resolution works well when measuring parameters such as flatness, thickness, and roundness.

- 10 to 100 mm stroke lengths
- IP40 protection rating
- 1 and 5 kΩ resistance options



Starting at
\$168.00
(PY2-F-0010-S-L)

PZ12 Series Pivoting Slide

Gefran PZ12 series round body linear potentiometers offer a small, 1/2-inch diameter housing and are ideal for smaller applications such as wood or metal finishing.

- Stroke lengths from 25 to 200 mm
- IP60 protection rating
- 1 to 8 kΩ resistance options



Starting at
\$215.00
(PZ12-A-0025-L)

PZ34 Series Pivoting Slide

Gefran PZ34 series round body linear potentiometers are similar to the PZ12 series but with a 3/4-inch diameter housing. Their ball joint mounting system adds versatility for a wide range of applications.

- Stroke lengths from 25 to 250 mm
- IP60 protection rating
- 1 to 8 kΩ resistance options



Starting at
\$198.00
(PZ34-A-0025-L)

PC Series Heavy-Duty Pivoting Slide

Gefran PC series heavy-duty pivoting linear potentiometers feature a rugged design and a reinforced structure with mechanical strength to handle demanding applications such as metalworking, woodworking, and ceramics.

- Stroke lengths from 50 to 300 mm
- IP65 protection rating
- 5 kΩ resistance



Starting at
\$306.00
(PC-M-0050-L)

prosense Linear Potentiometers

LSR-33P Series Fixed Slide

ProSense LSR-33P series fixed slide linear potentiometers deliver precise position measurements for a variety of applications. The sliding contact moves along a fixed resistive element, providing an absolute position output. Designed for automation, robotics, and industrial machinery, they offer long-term reliability at a great price.

- 30 to 1000 mm stroke lengths
- IP65 protection rating
- 5 or 10 kΩ resistance options



Starting at
\$94.00
(LSR-33P-0030-A5-C1)

LSRS-33P Series Rodless Slide

ProSense LSRS-33P series rodless slide linear potentiometers feature rugged anodized aluminum housings and offer unmatched dependability at an affordable price. They provide position feedback using a cursor that rides within a channel along the top of the sensor housing.

- 400 to 1250 mm stroke lengths
- IP40 protection rating
- 5, 10, or 20 kΩ resistance options

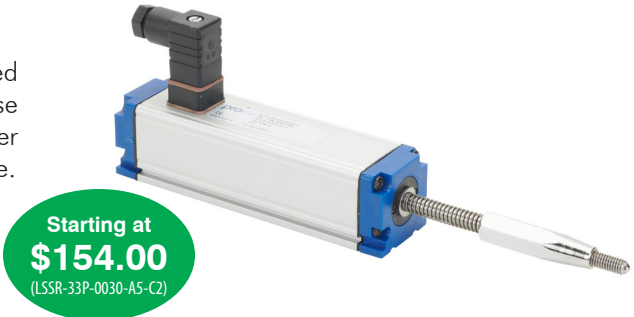


Starting at
\$162.00
(LSRS-33P-0400-D5-C1)

LSSR-33P Series Spring-Loaded Slide

ProSense LSSR-33P series linear potentiometers feature spring-loaded actuators that maintain constant contact with the target to ensure precise and reliable distance measurements. Designed for durability, they offer 303 stainless steel rods, anodized aluminum housings, and a low price.

- 30 to 150 mm stroke lengths
- IP50 protection rating
- 5 kΩ resistance



Starting at
\$154.00
(LSSR-33P-0030-A5-C2)

LCR-38P Series Heavy-Duty Pivoting Slide

ProSense LCR-38P series heavy-duty linear potentiometers are offered with 38 mm diameter cylindrical anodized aluminum housings and sturdy 10 mm diameter 303 stainless steel rods. Their pivoting slide action provides freedom of motion while tracking linear motion along a single axis.

- 50 to 375 mm stroke lengths
- IP65 protection rating
- 5 kΩ resistance



Starting at
\$147.00
(LCR-33P-0050-A5-C1)

LCR-18P Series Pivoting Slide

ProSense LCR-18P series pivoting slide linear potentiometers feature an ultra-compact 18 mm diameter form factor, making them ideal for space-limited applications.

- 10 to 400 mm stroke lengths
- IP54 protection rating
- 2 or 5 kΩ resistance options



Starting at
\$111.00
(LCR-18P-0010-A2-1A)

Linear Transducers

Linear transducers convert linear displacement of an object to an analog signal with the value being proportional to the change in displacement.

ALLIANCE SENSORS GROUP LVIT Linear Transducers

A DIVISION OF H.G. SCHAEVITZ LLC

Alliance linear transducers are available with 0 to 10 VDC or 4 to 20 mA outputs and an IP67 protection rating. They feature the proprietary LVIT Technology™ (Linear Variable Inductance Transducer) which offers:

- Excellent price-performance ratio
- Superior stroke-to-length ratio
- Contactless, frictionless operation with no components to wear out

LZE13 Series Fixed Slide

Alliance LZE13 series rod-style miniature position sensors feature a 12.7 mm diameter stainless steel cylinder and a superior stroke-to-body-length ratio designed for factory automation or assembly machinery applications where space is a premium.

- 0.1 to 8.0 inch stroke lengths
- 1 meter cable connection
- 0 to 10 VDC output



Starting at
\$331.00
(LZE13-2.5A-00-10S)



LZE19/LZI19 Series Fixed Slide

Alliance LZE19/LZI19 series threaded rod-style position sensors offer a through-bore design to eliminate mechanical overstroking. They feature a rugged 19 mm diameter stainless steel cylinder and a superior stroke-to-body-length ratio designed for factory automation or assembly machinery applications where space is a premium.

- 0.1 to 15.0 inch stroke lengths
- 1 meter cable connection



Starting at
\$333.00
(LZE19-2.5A-00-10S)



GHSE19/GHSI19 Series Spring-Loaded Slide

Alliance GHSE19/GHSI19 series stainless steel spring-loaded push-in style transducers are great for use in QA labs and other higher precision applications.

- 0.25 to 4.0 inch stroke lengths
- 6-pin solder connector



Starting at
\$765.00
(GHSE19-006A-02-10S)



LRSE18/LRSI18 Series Spring-Loaded Slide

Alliance LRSE18/LRSI18 series spring-loaded push-in style transducers are great for use in automotive testing and packaging equipment.

- 0.5 to 4.0 inch stroke lengths
- 1 meter cable connection
- Aluminum housings



Starting at
\$459.00
(LRSE18-013A-00-10A)



LRE19/LRI19 Series Pivoting Slide

Alliance LRE19/LRI19 series rod-style linear transducers with a 19 mm diameter cylinder are suitable for applications such as solar cell position, wind turbine positioning, and packaging equipment.

- 1.0 to 8.0 inch stroke lengths
- Easy mounting using swivel rod eyes
- Aluminum housings



Starting at
\$362.00
(LRE19-025R-00-10A)



LRE27/LRI27 Series Pivoting Slide

Alliance LRE27/LRI27 series heavy-duty rod-style linear transducers with a 27 mm diameter cylinder are suitable for industrial and commercial applications where ruggedness is required.

- 1.0 to 6.0 inch stroke lengths
- Field adjustable range scaling
- Aluminum housings



Starting at
\$505.00
(LRE27-025R-00-10A)



LRLE27/LRLI27 Series Pivoting Slide

Alliance LRLE27/LRLI27 series inductive linear rod-style transducers are similar to the LR series but with longer stroke lengths.

- 8.0 to 18.0 inch stroke lengths
- Field adjustable range scaling
- Aluminum housings



Starting at
\$772.00
(LRLE27-200R-00-10A)



LVE45/LVI45 Series Pivoting Slide

Alliance LVE45/LVI45 series heavy-duty inductive linear position sensors, designed for industrial applications requiring rugged devices, have a wide temperature range and can withstand the shock and vibration levels typically found in mills and power plants.

- 4.0 to 15.0 inch stroke lengths
- Field adjustable range scaling
- Stainless steel housings



Starting at
\$1,116.00
(LVE45-100R-01-10S)



Magnetostrictive linear transducers are contactless devices that have a longer life when compared to other linear position sensors. Since there is no electrical contact on the cursor there is no wear of mechanical components which almost guarantees an infinite life. Since these transducers operate using magnetostrictive technology they are also immune from EMC and are suitable for use in industrial environments with electromagnetic interferences.

- Electrical connection options are standard DIN connector or M12 quick disconnect
- 24 VDC operating voltage
- Electromagnetic compatibility EMC 2014/30/EU
- IP67 protection

WPG Series Rodless Slide

Gefran WPG series magnetostrictive linear position slides provide a single analog output that represents a direct measurement of displacement.

- 50 to 500 mm stroke lengths
- 0-10 VDC or 4-20 mA output
- 18 mm DIN 43650 Form A electrical connection
- Purchase cursor separately



Starting at
\$239.00
(WPG-A-M-0050-E)

WPP Series Rodless Slide

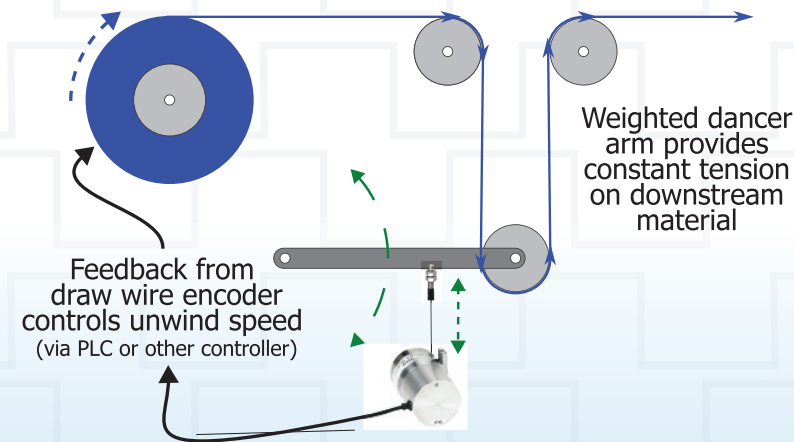
Gefran WPP series magnetostrictive linear position slides offer dual analog outputs, providing one output directly proportional to the displacement and an additional output that is inversely proportional (reverse) to the displacement.

- 50 to 500 mm stroke lengths
- 0-10 VDC or 4-20 mA outputs
- 8-pin M12 quick-disconnect electrical connection
- Purchase cursor separately



Starting at
\$362.00
(WPP-A-H-0050-E)

Draw Wire Encoders



What are draw wire encoders?

Also known as string encoders or string potentiometers, these linear measurement devices use a steel cable wrapped on a spring-loaded reel to measure distance. The reel is connected to a rotary encoder or potentiometer that can provide very accurate feedback of how far the steel cable has been extended. Lika draw wire encoders provide encoder (quadrature) and analog (0-10V, 4-20mA) outputs and are available in pull-lengths from 2 to 10 meters.

Why use draw wire measuring?

They are a good solution when the operational space is constricted, or the environmental conditions are severe. The encoder body can be mounted in a safe place, easily accessible, and adequately protected. While the measuring wire requires minimum space and can be subjected to harsher conditions. They can even replace standard encoders in some cases.

Typical applications include linear measuring, vertical lift measurement, cylinder stroke measurement, or any application where accurate, inexpensive, and easy to install measurement of a linear distance is required.

High Value, Low Cost Encoder Version (DWI-Series)

- Encoder (quadrature) output 0.025--0.050 mm/count resolution
- Miniature size (DWI-2M), robust and space saving construction
- Universal electrical output (line driver, open collector, etc.)
- Stainless steel draw wire
- Measuring lengths of 2000mm, 5000mm, and 10000mm
- Light duty IP64 and medium duty IP65 models available, with 2m pigtail connection



Potentiometer Version (DWP-Series)

- Analog voltage or current output: 0-10 V or 4-20 mA
- Robust design
- Smooth, stepless analog incrementing (potentiometer-based)
- Stainless steel draw wire
- Measuring lengths of 2000mm
- IP64 housing with 2m pigtail connection



Programmable Version (DWA-Series)

- Programmable analog output: 0-10 V or 4-20 mA
 - Scale the output to the specific application travel
 - Utilize maximum resolution (with any travel length)
- Easy to use Teach Mode
 - Via pushbuttons on the back of the encoder
 - Or use digital inputs
 - Change scaling programmatically (for recipe or other dynamic machine changes)
- Status LEDs
- Alarm notification if wire is pulled outside the Teach limits
- Stainless steel draw wire
- Max measuring lengths of 5000mm and 10000mm
- IP65 housing with M12 cable connection



Need a Measuring Wheel Encoder?



AR01 Series (Priced at \$299.00)

Medium-duty measuring wheels ride directly on the product (above or below) or a conveyor to measure or provide speed control feedback. These can also be used for cut-to-length and positioning applications.

- Metric and US/imperial wheel sizes
 - Standard 4" wheel (12.5" circumference)
 - Optional 80mm wheel (250mm circumference)
- Spring loaded arm with up to 30mm deflection
- IP65 environmental rating

Inclination Sensors

What is an inclination sensor?

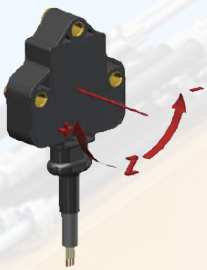
Inclination sensors are used for leveling applications, platform stabilization and monitoring, and position detection in construction equipment. Inclination sensors measure an object's tilt or inclination angle with respect to gravity.

Gefran inclination sensors use MEMS technology, micro-electromechanical devices integrated onto a single silicon chip, to provide reliable tilt angle measurement. These encapsulated IP67/69K rated sensors are shock and vibration resistant and suitable for the harshest environments. Single and dual-axis sensors are available with integrated axial cables or M12 quick-disconnects.

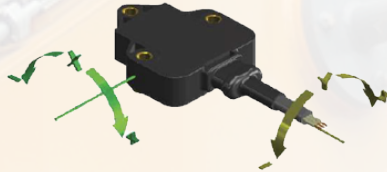
Inclination Sensor Selection Considerations

- Single or dual-axis
- Output type
- Range of inclination
- Resolution
- Single or redundant output

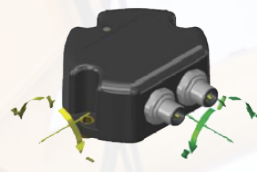
SINGLE AXIS



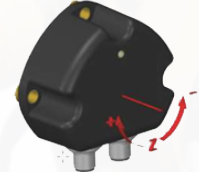
DUAL AXIS



DUAL AXIS REDUNDANT CIRCUIT



SINGLE AXIS REDUNDANT CIRCUIT



GIB Series Inclination Sensors

Gefran GIB series inclination sensors measure tilt angle with respect to gravity and can be used for applications such as agricultural machines, construction machines, and material handling equipment.

- Single or dual-axis
- 10 to 36 VDC input power
- 4 to 20 mA or 0 to 10 VDC analog output
- 12-bit resolution
- +/-15 to +/-180 degree measuring range
- PKT312-1QJ magnetic pen included with dual-axis GIB models
- Integrated axial cable
- IP67/IP69K rated for harsh environments



GIG Series Inclination Sensors

Gefran GIG series inclination sensors are fully redundant tilt angle sensors, featuring two separate sensors in the same housing, for critical applications such as agricultural vehicles, earth-moving machines, and hoisting equipment.

- Fully redundant with two sensors in each housing
- Single or dual-axis
- 10 to 36 VDC input power
- 4 to 20 mA or 0 to 10 VDC analog output
- 12-bit resolution
- +/-15 to +/-180 degree measuring range
- M12 quick-disconnect (purchase cable separately)
- IP67/IP69K rated for harsh environments



Magnetic Pen

The Gefran magnetic pen zeroes GIB-XY inclination sensors to the horizontal plane (dual-axis models only).

Applications

- Agricultural vehicles
- Construction equipment
- Hoisting equipment
- Mobile hydraulics applications
- Material handling