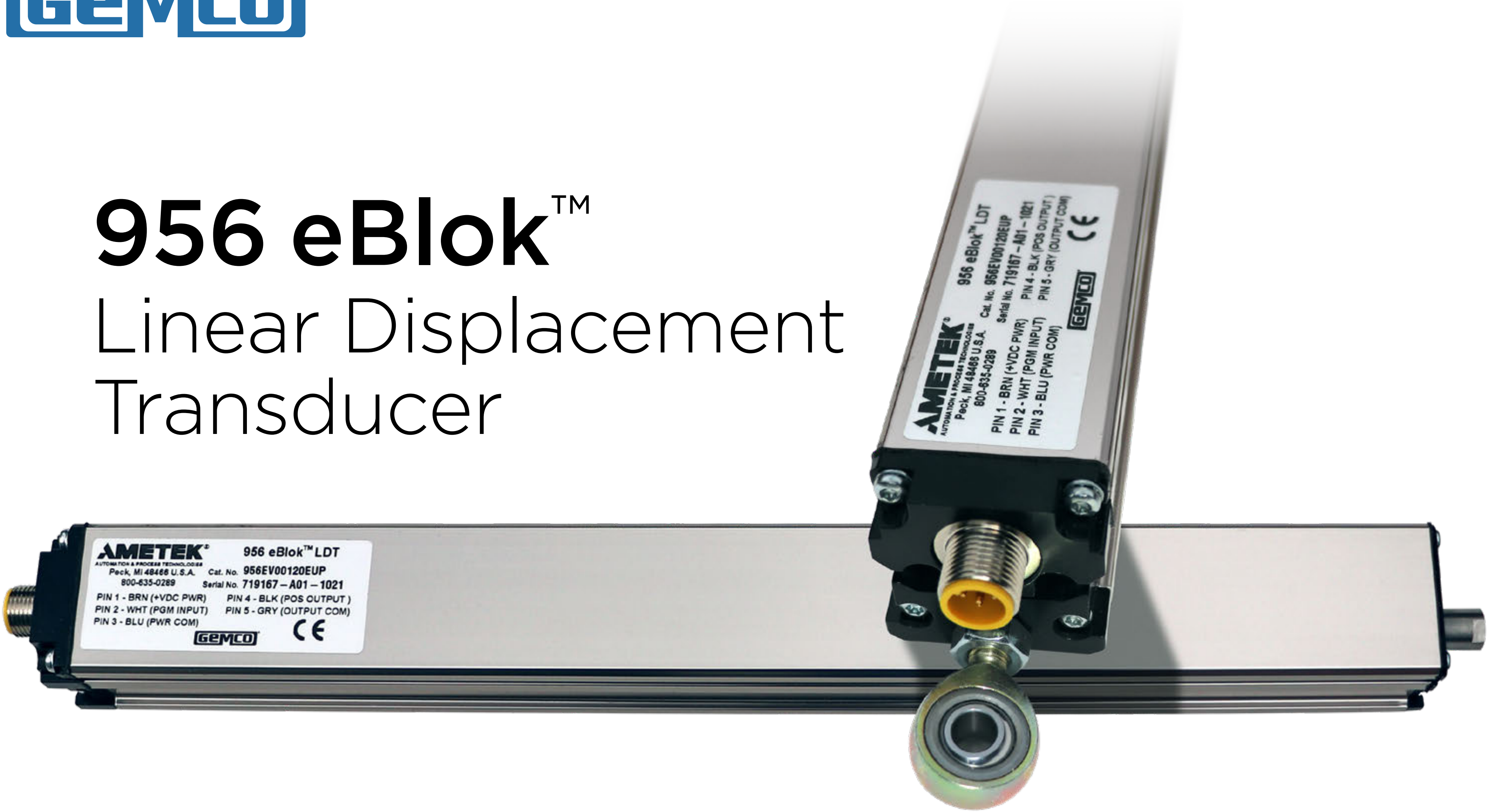
956 eBlok™

Linear Displacement Transducer



Affordable Linear Position Solutions

Simplify Installation and Serviceability

AMETEK® SENSORS, TEST & CALIBRATION

The Need for Automation is Greater Today Than Ever Before

Linear Displacement Transducers (LDTs) play an important role in automation. They provide accurate, reliable, absolute position feedback to help automate today's sophisticated machinery. Sensors must deliver value, be easy to set up, and interface easily into the host controller.

With this in mind, we designed the 956 eBlok™ Rod & Barrel Style Linear Transducer. The 956 eBlok utilizes our field proven Magnetostrictive technology to give absolute analog position, repeatable to 0.001% of the programmable sensing distance.

The 956 eBlok is a cost effective linear sensing solution. The streamlined anodized aluminum extrusion houses the sensing element, electronics, and sensing magnet. The magnet assembly is attached via a bearing to the piston rod. As the rod moves in and out, the position is converted to a readable analog output.

The 956 eBlok is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated into an exclusive two chamber industrial Rod & Barrel style housing. The electronics are isolated in a chamber that is sealed to IP67. Units can be ordered in English or metric span lengths from 1" to 60" in 1" increments (25 mm to 1525 mm) and come standard with a 5-pin M12 style connector. The piston is isolated in the second chamber and is designed to move effortlessly along the transducer.

The transducer can be mounted vertically using our mounting feet or optional rod ends. The mounting feet slide on the lower part of the extrusion and clamp down when tightened. The Rod & Barrel package provides a compact and easy method of mounting for machine builders.

The 956 eBlok is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to linear potentiometers, limit and proximity sensors. Applications include presses, blow molding, injection molding, extruding, roll positioning, tire press, material handling, web tensioning, sawmill, hydro power generation and many more.

Key Features

- Rod & Barrel Style Housing
- Rugged, Cost Effective Alternative to Linear Potentiometers
- Exclusive Two Chamber Housing: Isolates electronics from piston rod
- IP67 Rated (per EN60529)
- Vibration Resistance to 15 Gs–10Hz–2KHz (per IEC 60068-2-6)
- Shock Resistance to 100 Gs, single hit (per IEC60068-2-27)
- Sensor Stoke Lengths from 1 to 60" (25 to 1525 mm)
- High Accuracy/High Resolution: 16-bits
- Analog Output: 0 to 10 VDC or 4-20 mA
- Diagnostics Over Analog Output
- Programmable Zero and Span Points
- Durability and Reliability Exceeds Competitive Offering

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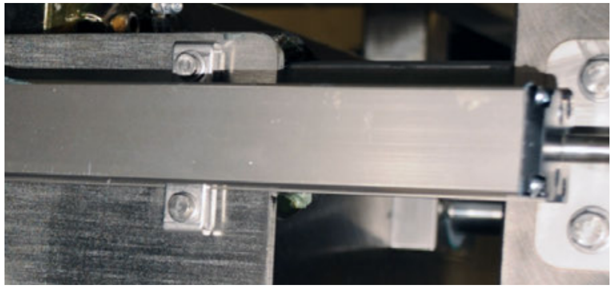
Affordable Position Sensing

Continuous Vibration, High Cycle Rate, & Extreme Temperatures

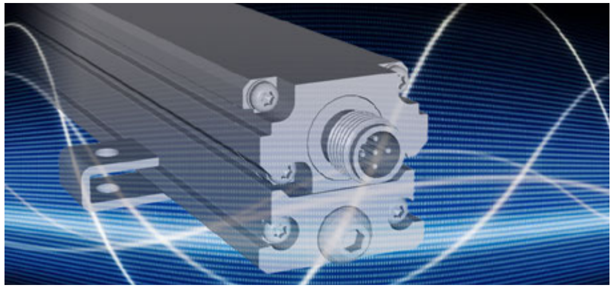
The 956 eBlok Linear Position Sensor Performs Flawlessly in All Types of Applications.



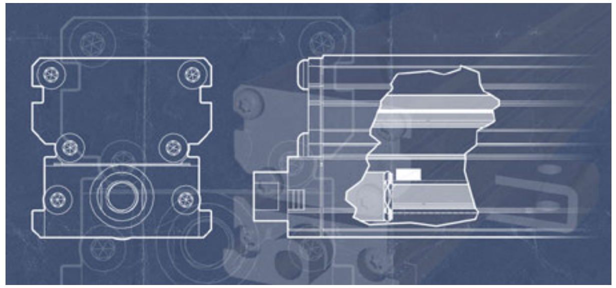
Shock and Vibration: The 956 eBlok is designed to withstand vibration of up to 15 Gs, 10 Hz to 2 kHz (per IEC 60068-2-6); and shock up to 100 Gs, single hit (per IEC 60068-2-27).

Magnetostrictive Technology: Gemco's magnetostrictive transducers have been a leader in industrial applications for over 30 years. Our field-proven technology delivers extreme accuracy and resolution, as well as unmatched reliability and durability.

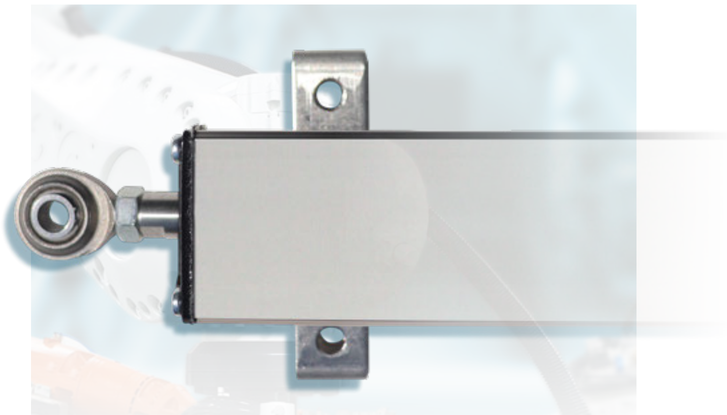
Accurate Feedback: High accuracy, combined with 16-bit output resolution provides reliable, absolute position feedback to help automate today's sophisticated machinery. Programmable zero and span points allow you to adjust the output to exactly match your requirements.



Electromagnetic Compatibility: Unwanted effects like electromagnetic interference (EMI) can generate inaccurate feedback and cause serious damage to your equipment. The 956 eBlok sensor provides superior electrical noise and emissions immunity in all types of applications.



Simplicity by Design: With its exclusive two chamber construction and easy installation, the 956 eBlok will deliver the accurate, reliable performance you've come to expect from Gemco. The unit is available with a variety of analog outputs for easy integration in the host controller. The 956 eBlok is absolute and never requires annual calibration or field adjustments.



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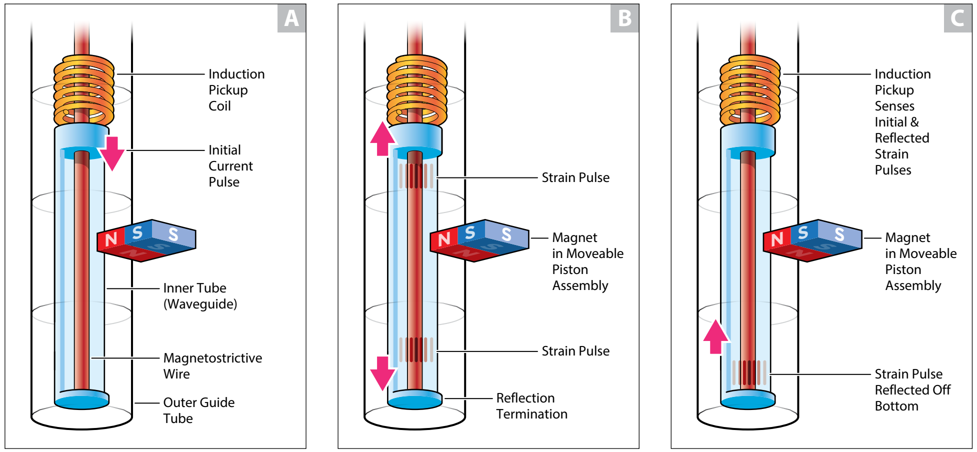
Technology and Performance

Benefits of Magnetostrictive Technology

THE 956 eBlok Linear Displacement Transducer (LDT) is an ideal alternative to the traditional low-cost Linear Potentiometer. The advantages of the 956 eBlok over the traditional potentiometer are that the 956 eBlok uses our field proven Magnetostrictive technology to provide absolute analog feedback.

Potentiometers are electro-mechanical devices that consist of a moveable wiper and resistive element to provide a voltage feedback. Potentiometers are subject to wear from repetitive operation and vibration, not to mention that they also drift with temperature. Contaminants are also a problem as they can enter the sensors housing and interrupt the contact from the wiper to the resistive element, causing premature failure or erratic position signals. In our unique two chamber housing design, the electronics are sealed to IP67 and are separated from the moveable piston assembly.

Gemco Magnetostrictive Technology Made Easy



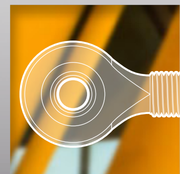
In a Gemco position sensor, a current pulse is sent down a Magnetostrictive wire in a specially designed waveguide *(Figure A)*. The interaction of this current pulse with the magnetic field created by the movable magnet assembly produces a torsional strain pulse on the wire, which travels at sonic speed along the wire *(Figure B)*. The strain pulse traveling up the wire is sensed by a small induction pickup coil in the head assembly of the LDT. The position of the movable magnet is determined with high precision by measuring the time between the launching of the current pulse and the arrival of the torsional strain pulse *(Figure C)*. The result is highly accurate non-contact position sensing with absolutely no wear on the sensing element.

Tools and Options

Diagnostics: Eliminate guesswork, and quickly identify the cause of unexpected readings. Diagnostics built into the analog output notify the host controller if the magnet signal is ever lost, or if the machine has moved beyond its programmed range.

Programmability: As an option the 956 eBlok can be ordered with Programmable Zero & Span positions so the analog output can be field programmable to meet your exact requirements.

Configuration: Select an output to directly match your controller's input. Analog voltage and current outputs are available.



Rod Ends:
To help simplify installation. Rod Ends and Threaded Rods can be easily attached to the 956 eBlok.

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Ordering Information

Model Numbering

Model	Available Analog Outputs	Stroke	Unit of Measure	Rod and Barrel Threads	Programmability
956E	____	____	____	____	____
	Voltage Output 0–10 . . . . V0	Strokes are indicated from 1" to 60" in 1" or 25 mm increments, entered as a 4-digit number.	English (inches). . . . . E	Tapped Female Piston Rod – 1/4"-28 . . . U Connector End Cap will have the same threads as the piston rod.	Non-programmable X
	Voltage Output 10–0 . . . . V1		Metric (millimeters) . . . M		Programmable Zero & Span . . . P
	Current Output 20–4 mA C2				
	Current Output 4–20 mA C4	ie: 12" Stroke. 0120		Tapped Female Piston Rod – M6 . . . . . . M Connector End Cap will have the same threads as the piston rod.	
		ie: 100 mm Stroke. 0100			

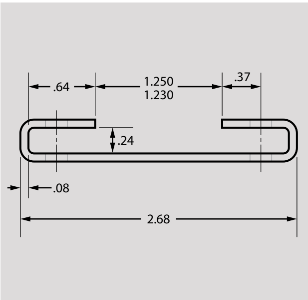
Sample Part Numbers

956EV00120EUP. . . . . 0–10 volt output; 12" stroke; tapped female piston rod with 1/4"–28 threads on piston rod and endcap; and programmable zero and span.

956EC20100MMX. . . . . . . 20–4 mA current output; 100 mm stroke; tapped female piston rod with M6 threads on piston rod and endcap; and non-programmable.

Accessories

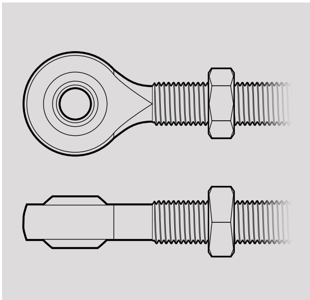
▶ Mounting Feet and Rod Ends



Mounting Foot

SD0522000
Mounting Foot.

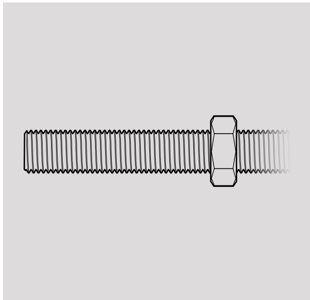
SD0545100
Mounting Foot and Spacers for .45" or .75" mounting. Includes two mounting feet and two of each spacer.



Rod End and Nut Assembly

PSD0284700
English, 1/4"– 28 Zinc Plated Steel.

PSD0284800
Metric, M6 Zinc Plated Steel.

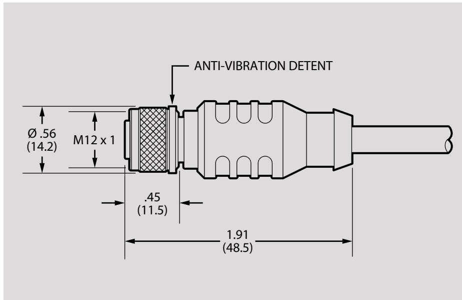


Threaded Rod and Nut
Used when male threads are needed.

PSD0284400
English, 1/4"– 28.

PSD0284500
Metric, M6.

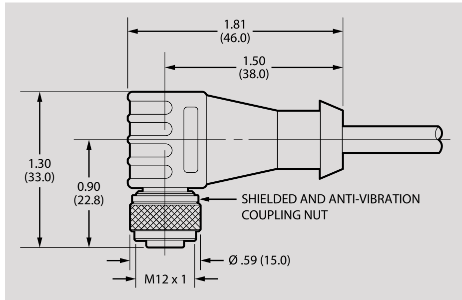
▶ Cable Assemblies



Straight Connector
5-pin, M12-A Straight to flying leads – Shielded

949019L6
5-pin, Straight–Shielded Cordset–PVC Jacket–6 ft long

949019L12
5-pin, Straight–Shielded Cordset–PVC Jacket–12 ft long



Right Angle Connector
5-pin, M12-A Right Angle to flying leads – Shielded

949020L6
5-pin, Right Angle–Shielded Cordset–PVC Jacket–6 ft long

949020L12
5-pin, Right Angle–Shielded Cordset–PVC Jacket–12 ft long

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Specifications

General Specifications

Displacement	1" (25 mm) to 60" (1525 mm) in 1" (25 mm) increments. 36" Stroke maximum for unsupported horizontal applications.

Performance Specifications—Measurement

Linearity	± 0.03% of Stroke or ± 0.013", whichever is greater
Hysteresis	0.001" maximum
Repeatability	0.001%
Update Time	1 ms

Null and Dead Bands

Null	3.03"
Dead	2.82"

Mechanical Specifications—Housing

Housing & End Caps Material	Anodized Aluminum
Piston Material	303 Stainless Steel

Temperature

Operating	-40 to 85°C
Storage	-40 to 105°C

Shock and Vibration

Shock	100 Gs, single hit (per IEC 60068-2-27)
Vibration	15 Gs, 10Hz-2kHz (per IEC 60068-2-6)

Ingress Protection

Protection Level Electronics Chamber	IP67 (per EN 60529)

Electrical Specifications

Power Consumption	1.1 Watt (44 mA typical)
Input Voltage	24 VDC ± -20%

Protection

Polarity	Reverse polarity protected
Overvoltage	Transient overvoltage protection to 30 VDC

Resolution

Internal	0.00006"
Output	16 bit

Analog Output Specifications

Voltage Output	0 to 10 Vdc or 10 to 0 Vdc
Output Current	4 mA to 20 mA or 20 mA to 4 mA

Output Loading

Voltage	2 kΩ minimum
Output Current	Guaranteed 5 mA minimum for voltage units
Analog Ripple	1 mV maximum
Current Output Maximum Load Resistance	500 Ω maximum

Connection Options

5 Pin - M12	5 pin - A-Code

Approvals

CE (Electromagnetic Compatibility	2014/30/EU

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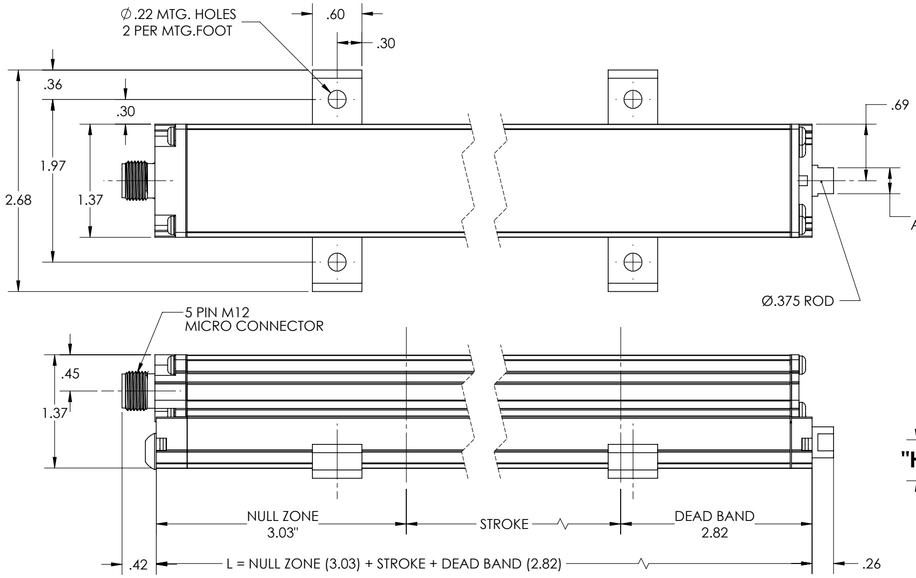
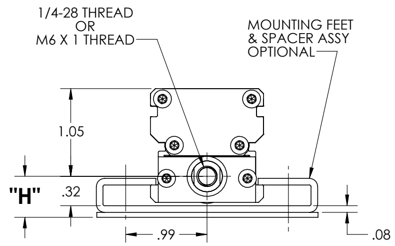
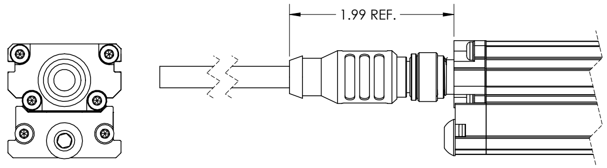
Dimensions–Base Unit



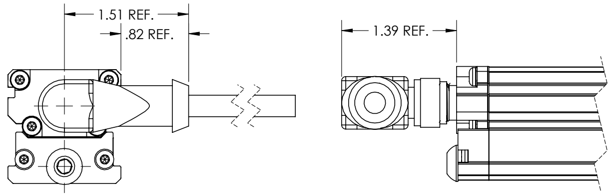


SPACER PART NO.	"H" MOUNTING HEIGHT
S0083900	.45
S0083901	.75

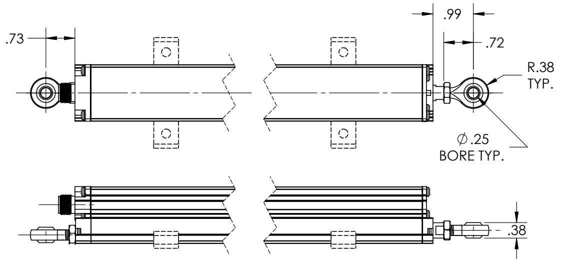
Straight Cable Connector



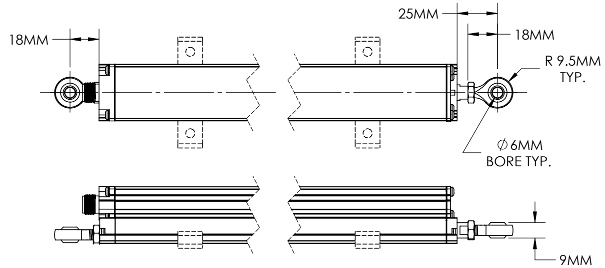
90° Right Angle Cable Connector



Optional Rod Ends

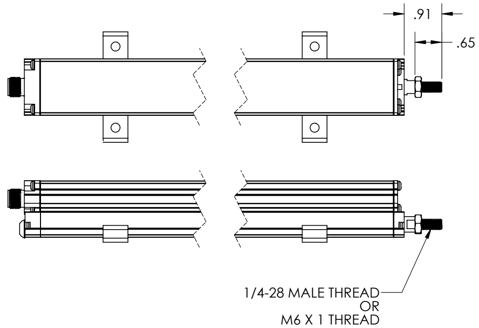


▶ **Inch**



▶ **Metric**

Optional Male Threaded Ends



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FPDA MOTION & CONTROL NETWORK
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Email . . . apt.sales@ametek.com
Web . . . . ametekfactoryautomation.com

GEMCO®

6380 Brockway Road, Peck, Michigan 48466
800.635.0289 • 248.435.0700

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