GEMCO®

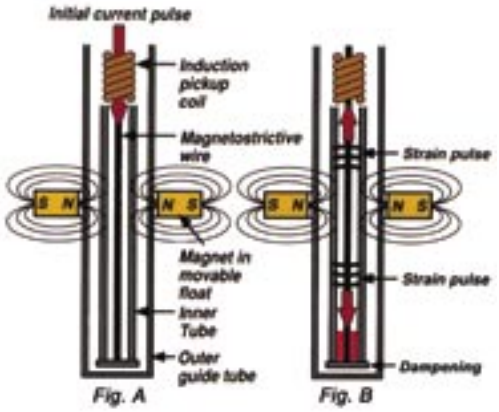
ORDERING GUIDE & TECHNICAL INFORMATION

LINEAR DISPLACEMENT TRANSDUCERS

ABSOLUTE PROCESS CONTROL
KNOW WHERE YOU ARE... REGARDLESS

AMETEK®
AUTOMATION & PROCESS TECHNOLOGIES

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. The result is highly accurate non-contact position sensing with absolutely no wear on the sensing element.

Hysteresis
The difference in indicated position when the same point is reached from two different directions.

Repeatability
The deviation in indicated position when a point along a stroke length is approached repeatedly from the same direction.

Magnetostriction
A magnetic field produces a small change in the physical dimensions of ferromagnetic materials on the order of several parts per million in carbon steel and, conversely, a physical deformation or strain (or stress which causes strain) produces a change of magnetization in the material.

Non-Linearity
The degree that the indicated position of the magnet at points along the stroke varies from the actual physical position. Non-linearity of an LDT is expressed in absolute error or as a percentage of the active stroke length.

Resolution
Resolution is the smallest incremental change in position along the stroke length of the sensor that can be detected and indicated in an output. When using LDTs with analog output (i.e., voltage or current outputs), resolution is limited by the amount of power supply-induced output ripple and the sensitivity and/or design capabilities of the receiver electronics. Digital system resolution is defined by a specific value.

Recirculation
A method used to improve the resolution of a system using digital LDTs. The on time of the pulse width output is multiplied by a specific factor. This multiplication provides more counting time for the counter in the customer's electronics, thus improving the resolution.

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Principles Of Operation

	Number	Voltage	Current	Digital	Quadrature	
	940	V	I			940
	950IS	V	I			950IS
	951	V	I	D		951
	952	V	I	D	Q	952
	955	V	I	D	Q	955
	956	V	I	D	Q	956
	7330		I			7330
Accessories						Accessories
	950MD					
	955 Battery Operated Programming Unit					
	955-1409 Inline Programmer					
	Misc.					

Applications

Application	Solution	
Harsh Environment "Mill-Duty"	950 Mill-Duty	
	952 BlueOx	
Food & Beverage	952 BlueOx Stainless Steel	
	7330 Pro-Stik III	
	7330S Sanitary Pro-Stik III	
Competitive "Drop-In" Replacement	951 Quik-Stik	
	952 BlueOx with T, Q, M Connection Options	
Hazardous Locations 	950IS Intrinsically Safe	
	7330 Pro-Stik III	
	955S with FM Approval	
Field Programmable Active Zone   **Hydraulic & Pneumatic Cylinders**	955 BRIK Gen III with Programmers	
	955S/955A BRIK with Programmers	
	951 Quik-Stik with Hand-Held Programmer	
	952 BlueOx	
Multiple Magnet Capabilities	952 BlueOx	
	955D	

Other Applications					
Hydraulic Cylinders Foundries Packaging Machines Die Casting	Medical Systems X-Y Axis Positioning Tunnel Boring Equipment Testing Equipment	Elevators Extruding Equipment Valve or Actuator Positioning Labeling Machines	Tire Manufacturing Equipment Injection Molding Flight Simulators Side Guides	Lumber Equipment Amusement Park Rides Hydraulic Servo Systems Casting & Rolling Mills	Steel Mill Systems Stamping Presses Shut Height

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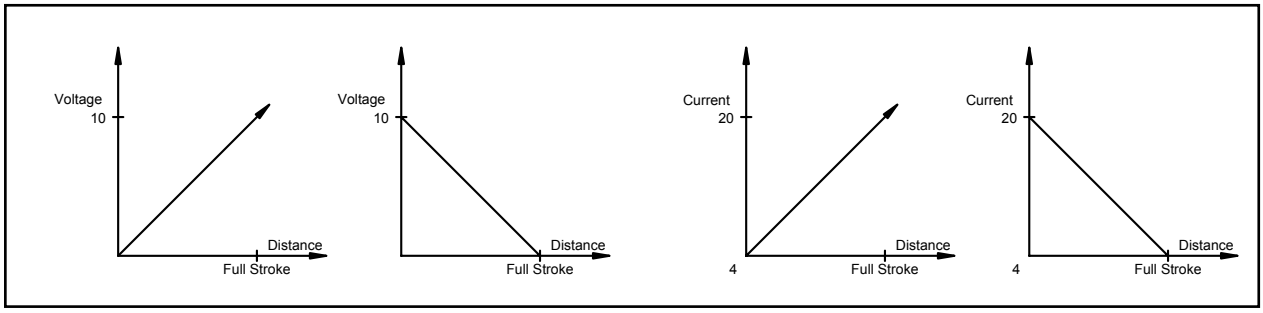
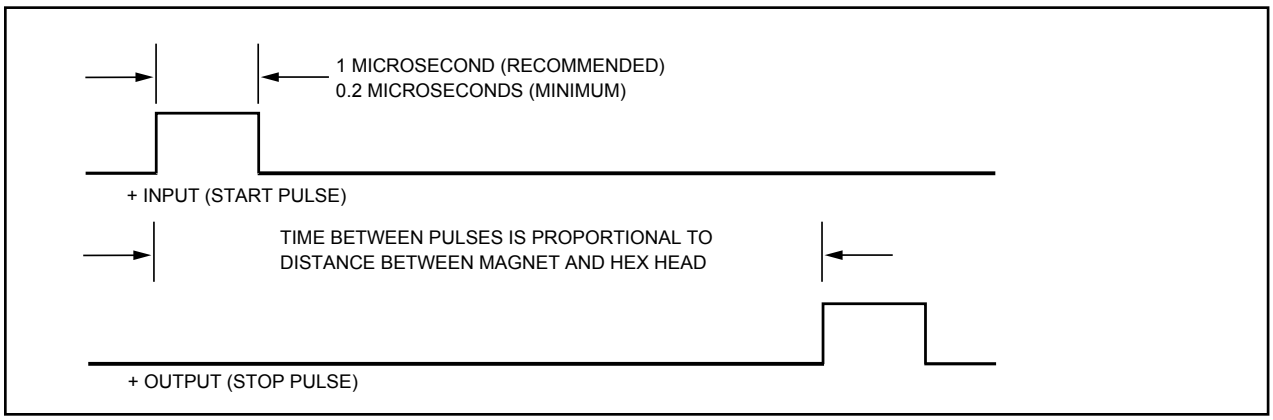
Analog Version

The analog style units are an industry standard and are available with voltage or current outputs. The output format, voltage or current, is hardware specified. The Series 951, 952 and 955 model LDTs have programmable voltage and current outputs. The output's count direction, zero and span are all programmable. The Series 951 units offer 16 bits of resolution and are programmable via a hand-held programmer (951-1405) or via RS232 serial communication from a PC. The Series 952 and 955S units are programmable without any accessories or adaptors. The Series 940 are factory set and are not programmable. Velocity outputs are a no charge optional feature on all 951 analog style units. The velocity output on a voltage unit will be a voltage output, and current units will have a current velocity output. This feature can be programmed at the factory or in the field using a PC and a special velocity programming disk. When configured at the factory with the velocity output, the voltage type units will generate a positive voltage moving away from the LDT head and a negative voltage moving towards the head. With current units the output will be 12 mA with no movement and will go to 4 mA with movement towards the head and 20 mA with movement away from the head. The rate at which this output is updated, its direction, and digital filtering are all programmable through the velocity programming disk.



Control Pulse

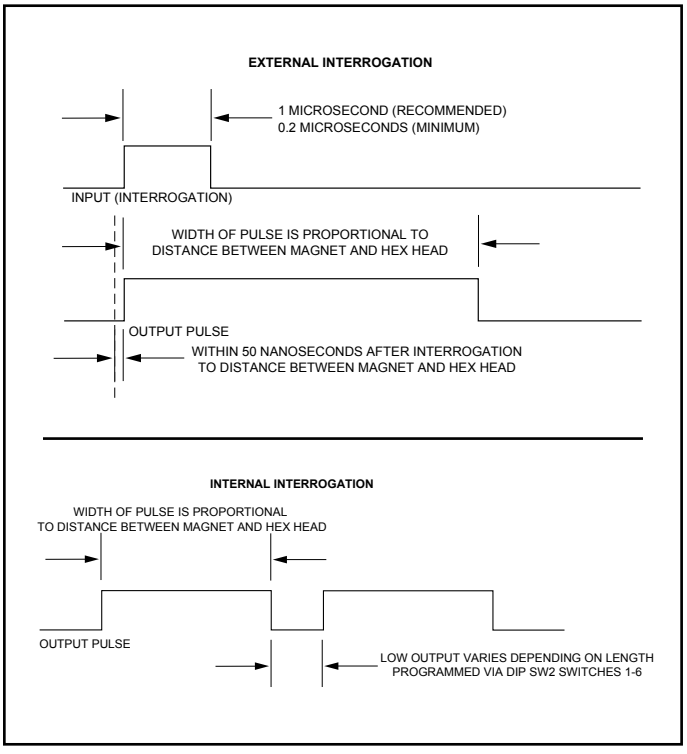
The control pulse signal interface is a differential RS-422 output. The maximum cable length for the differential digital LDT is 1,500 feet. To initiate a start pulse, an external device is used. This start pulse should be 1.0 microsecond in duration. The time between the leading edge of the start pulse to the leading edge of the stop pulse is the proportional distance from the magnet to the hex head.



Output Types

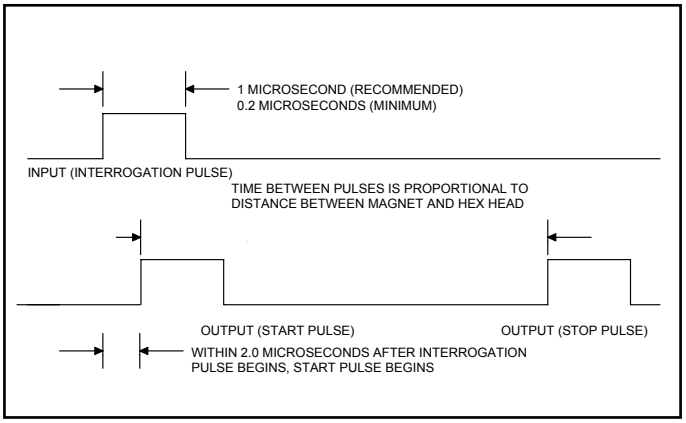
Variable Pulse

The variable pulse signal interface is a pulse width modulated signal (RS422). The maximum cable length for the differential LDT is 1,500 feet. The LDT can also be configured for external or internal interrogation. External interrogating is when an external device connected to the LDT generates a start pulse. This start pulse should be a minimum of 1.0 microsecond in duration. Within 50 nanoseconds after the leading edge of the start pulse has been received, the LDT will generate an output pulse. The duration of the output pulse is proportional to the distance from the magnet to the hex head. The order of these two pulses is illustrated below. The LDT can also generate internal interrogations. This LDT will continually output pulse width modulated signals. As with an LDT using an external interrogation, the duration of this output pulse is proportional to the distance from the magnet to the hex head.



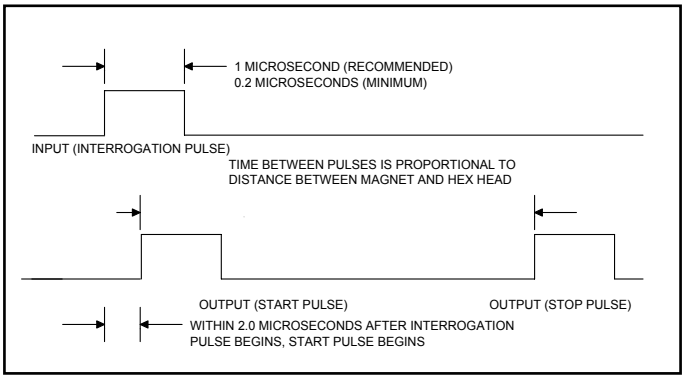
RS422 Start/Stop with Interrogation Start Sequence

The start/stop uses a 1 microsecond (minimum) external interrogation input to start a cycle. Based on the interogation input, a pair of one microsecond return pulses are received and the time differential between the signals is proportional to the distance from the sensor head (hex) and magnet.



TTL Level Start/Stop Version

The TTL Level start/stop pulse system looks at a one microsecond TTL pulse (minimum) start pulse from an external source. The unit will then generate a TTL level stop pulse. The time span between the start/stop pulses is proportional to the distance from the sensor head (hex) to the magnet.



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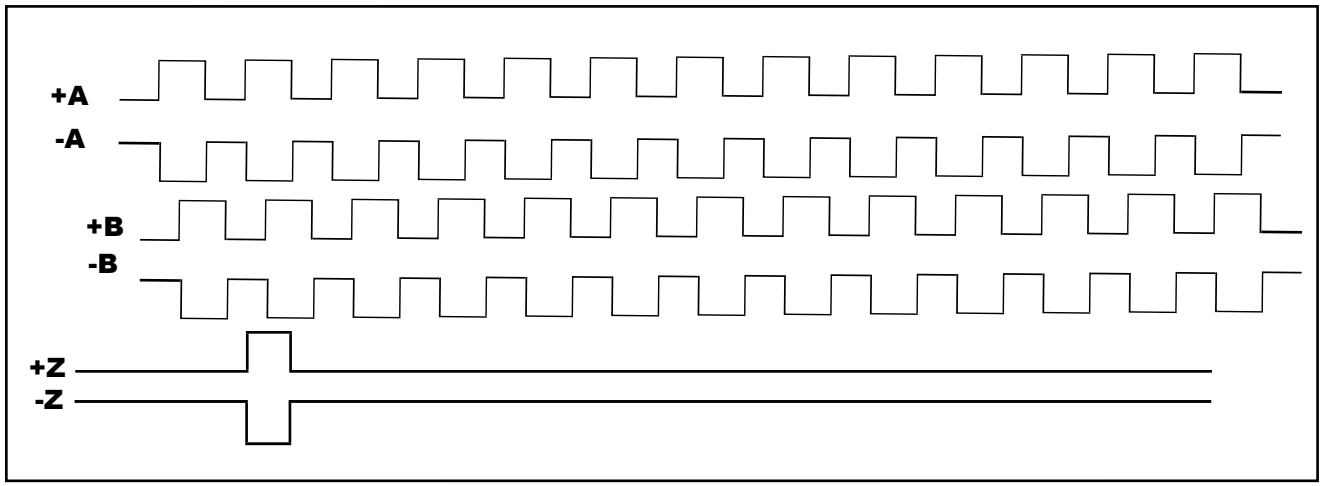
Quadrature Output

A new method of interfacing magnetostrictive transducers offers an interface as common as analog with the speed and accuracy of a digital pulsed type signaling. The Gemco quadrature LDTs provide quadrature output directly from the transducer to the controller. The output from the transducer can be wired directly to any incremental encoder input or counter card, without the need for a special converter module or PLC interface card designed specifically for use with pulsed output magnetostrictive transducers. The quadrature output has the “A”, “B” and “Z” outputs. These outputs are “differential” (also known as balanced), which means that the connection for each output consists of two signal wires. These are typically described as the “plus” and “minus” signals. For example, the “A” channel consists of “A+” and “A-”. The same applies to the “B” and “Z” channels. For these (differential) outputs, the signal is measured with the reference to the other signal (i.e. the difference or differential). For example, if the “A+” single voltage is greater than the “A-” signal, channel “A” is a logic “0”. Again, this applies to the “B” and “Z” channels as well. Differential type signals are much less prone to interference caused by electrical noise or ground loops more often found in single ended signal connections. Line drivers are also available for driving single ended inputs that are not TTL compatible.



GEMCO®

Series	940 LPS	951 Quik-Stik II	952 BlueOx	952QD BlueOx Quadrature	955LC	
Supply Voltage	15-26 VDC	13.5-26 VDC	15-26 VDC	15-26 VDC	24 VDC	
Analog Outputs						
4-20 mA	Yes	Yes	Yes	No	Yes	
0-10 VDC	Yes	Yes	Yes	No	Yes	
Digital Outputs						
Stop/Start	No	Yes	Yes	No	No	
Control Pulse	No	Yes	Yes	No	No	
Pulse Width Modulated	No	Yes	Yes	No	No	
Velocity	No	Yes	No	No	No	
DeviceNet	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	
Performance						
Position Accuracy (of full stroke)	0.1%	0.05%	0.05%	0.05%	0.1%	
Repeatability (of full stroke)	0.01%	0.001%	0.006%	0.001%	0.01%	
Resolution	Infinite	0.001”	Internal Resolution 0.001”	0.001”	Internal Resolution 0.014”	
Mechanical Considerations						
Lengths - 0.1” Increments	6-96”	1-300”	2-168”	2-168”	6-180”	
Null Zone	2”	1.5”	2”	2”	3”	
Dead Zone	5”	2.25”	2.5”	2.5”	1.5”	
In Cylinder Mounting	Yes	Yes	Yes	Yes	On-Cylinder Mounting	
Enclosure Rating (IP)	IP65	IP67	IP67	IP67	IP67	
Optional Mill Duty Housing	Yes	Yes	Yes	Yes	No	
Options & Features						
Hand Held Programmer	No	Yes	Yes	No	No	
Ability to Program via PC	No	Yes	No	No	No	
Temposonics II Style Conn.	No	Yes	Yes	No	No	
High Shock & Vibration	Good	Good	Excellent	Excellent	Good	
Multiple Magnets	No	No	Yes	No	No	
Universal Mounting Kit	Yes	Yes	Yes	Yes	Yes	
Metric Threads & Dimensions	Yes	Yes	Yes	Yes	N/A	
All Stainless Steel (head & potted connector)	No	Yes	Yes	Consult Factory	No	
High Temp Cables	Yes	Yes	Yes	Yes	Yes	
Applications						
Measurement	No	Yes	Yes	Yes	No	
Heavy Industry, Lumber, Metal Stamping, etc.	No	Yes	Yes	Yes	Consult Factory	
Positioning, Replacing Prox or Limit Switches	Yes	Yes	Yes	Yes	Yes	
Cost	Low	Mid-Range	Mid-Range	Mid-Range	Low	

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	955S Smart BRIK	955 Gen III Analog	955D	955DQ BRIK Quadrature	956 BLOK	7330 Pro-Stik II
	10-30 VDC	13.5-30 VDC	13.5-30 VDC	10-30 VDC	*	14-30 VDC
	Yes	Yes	No	No	Yes	Yes
	Yes	Yes	No	No	Yes	No
	No	No	Yes	No	Yes	No
	No	No	Yes	No	Yes	No
	No	No	Yes	No	Yes	No
	No	No	Controller Dependent	No	Controller Dependent	No
	Consult Factory	Consult Factory	Consult Factory	Consult Factory	Consult Factory	No
	0.1%	0.05%	0.05%	0.05%	*	0.1%
	0.01%	0.006%	0.006%	0.006%	*	+/-0.01%
	Internal Resolution 0.014”	Internal Resolution 0.001”	Controller Dependent	0.001”	*	Internal Resolution 0.014”
	4-180”	5-180”	5-180”	5-180”	4-36”	8-288”
	3”	3	3	3”	*	8”
	1.5”	2”	2”	2”	*	2”
	On Cylinder Mounting	On Cylinder Mounting	On Cylinder Mounting	On Cylinder Mounting	*	No
	IP67, IP68 Optional	IP67, IP68 Optional	IP67, IP68 Optional	IP67, IP68 Optional	*	IP68,3A Optional
	No	No	No	No	No	No
	Yes	Yes	Consult Factory	Consult Factory	*	No
	No	No	Consult Factory	Consult Factory	*	No
	No	No	No	No	*	No
	Good	Good	Good	Good	*	Good
	No	No	Yes	No	*	No
	Yes	Yes	Yes	Yes	*	No
	N/A	N/A	N/A	N/A	*	N/A
	No	No	No	No	*	Yes
	Yes	Yes	Yes	Yes	*	Yes
	No	Yes	Yes	No	*	No
	Consult Factory	Consult Factory	Consult Factory	Consult Factory	*	No
	Yes	Yes	Yes	Yes	*	Yes
	Low	Mid-Range	Mid-Range	Low	*	Mid-Range

***The 956 BLOK is a housing option. Refer to sensor specifications.**

940 LPS
Linear Position Sensor

940

The Gemco LPS Linear Position Sensor

The non-contact Gemco LPS Linear Position Sensor uses field proven and reliable magnetostrictive technology to deliver accurate, absolute and continuous machine positioning.

Available in pre-engineered sensor lengths or custom lengths to fit your application with standard analog outputs, this sensor is a durable, value-packed linear position device that is easy to use. It not only replaces discrete position sensors, but outperforms them at roughly the same cost.

We designed the Gemco LPS to connect directly to conventional programmable controllers or analog input modules, and made it work without the need for programming, adjustments or initialization. Then we employed our 50 years of experience in packaging control products for harsh industrial environments and made the Gemco LPS a rugged and reliable sensor that performs on the plant floor. Nothing else on the market compares to the Gemco LPS.

Limit switches are contact devices that have wear problems. The Gemco LPS is non-contact. Limit and proximity switches can only give discrete position information. The Gemco LPS gives continuous position information. Incremental shaft encoders require gear trains and position information is lost with a power failure. The Gemco LPS doesn't use gear trains and position data is never lost because the sensor is absolute.

The Gemco LPS offers 0.1% accuracy of positioning (0.012" on a 1 foot sensor). The sensor comes in an IP65 enclosure. Standard lengths of 6", 12", 18", 24", 36" and 72" are in stock. Other lengths are also available.

Specifications	
Input Voltage	15 - 26 VDC
Current Draw Voltage Current	 50 mA Max N/A
Output	0 - 10 VDC or 10 - 0 VDC 4 - 20 mA
Position Accuracy	0.1% of Full Stroke
Non-linearity	+/- 0.05% of Full Stroke
Repeatability	0.01% of Full Stroke
Operating Temperature 1) Head Electronics 2) Guide Tube	 -4° to 158° F (-20° to 70° C) -40° to 185° F (-40° to 85° C)
Operating Pressure	3000 psi Operational, 8000 psi Spike
Span Length	1" - 96"
Null Zone	2"
Dead Zone	5"
Connectors	12mm 4 Pin Micro
Enclosure	IP65
Specifications are subject to change without notice.	

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940 LPS
Linear Position Sensor

Standard Configurations		
Output	**Sensor Length in Inches**	**Part Number**
0-10 VDC 3 Wire	6	940-0060-1E
	12	940-0120-1E
	18	940-0180-1E
	24	940-0240-1E
	36	940-0360-1E
	48	940-0480-1E
	72	940-0720-1E
	96	940-0960-1E
10-0 VDC 3 Wire	6	940-0060-2E
	12	940-0120-2E
	18	940-0180-2E
	24	940-0240-2E
	36	940-0360-2E
	48	940-0480-2E
	72	940-0720-2E
	96	940-0960-2E
4-20 mA 2 Wire Loop Powered	6	940-0060-3E
	12	940-0120-3E
	18	940-0180-3E
	24	940-0240-3E
	36	940-0360-3E
	48	940-0480-3E
	72	940-0720-3E
	96	940-0960-3E

Non-Standard Configurations

940 — **0120** — **1E**

940 = **Analog LPS**

0120 = **Active Stroke**
Units are ordered in 0.10 inch increments.
0120 = 12 inch active stroke

1E = **Output**
1E = 0-10 VDC
2E = 10-0 VDC
3E = 4-20 mA Loop Powered

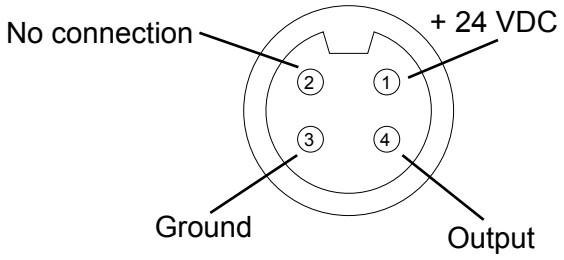
940

Dimensions & Wiring Diagram

Wiring Diagram

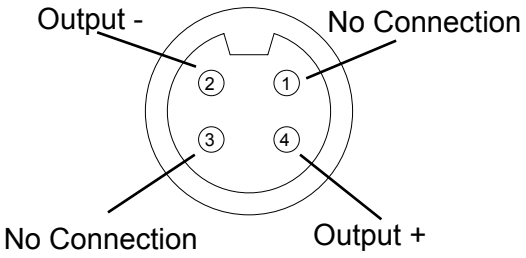
Use Euro Connector (micro 12 mm single keyway) cordsets, available from most connector manufacturers or purchased from Ametek. Install according to the following diagrams:

10-0 or 0-10 VDC



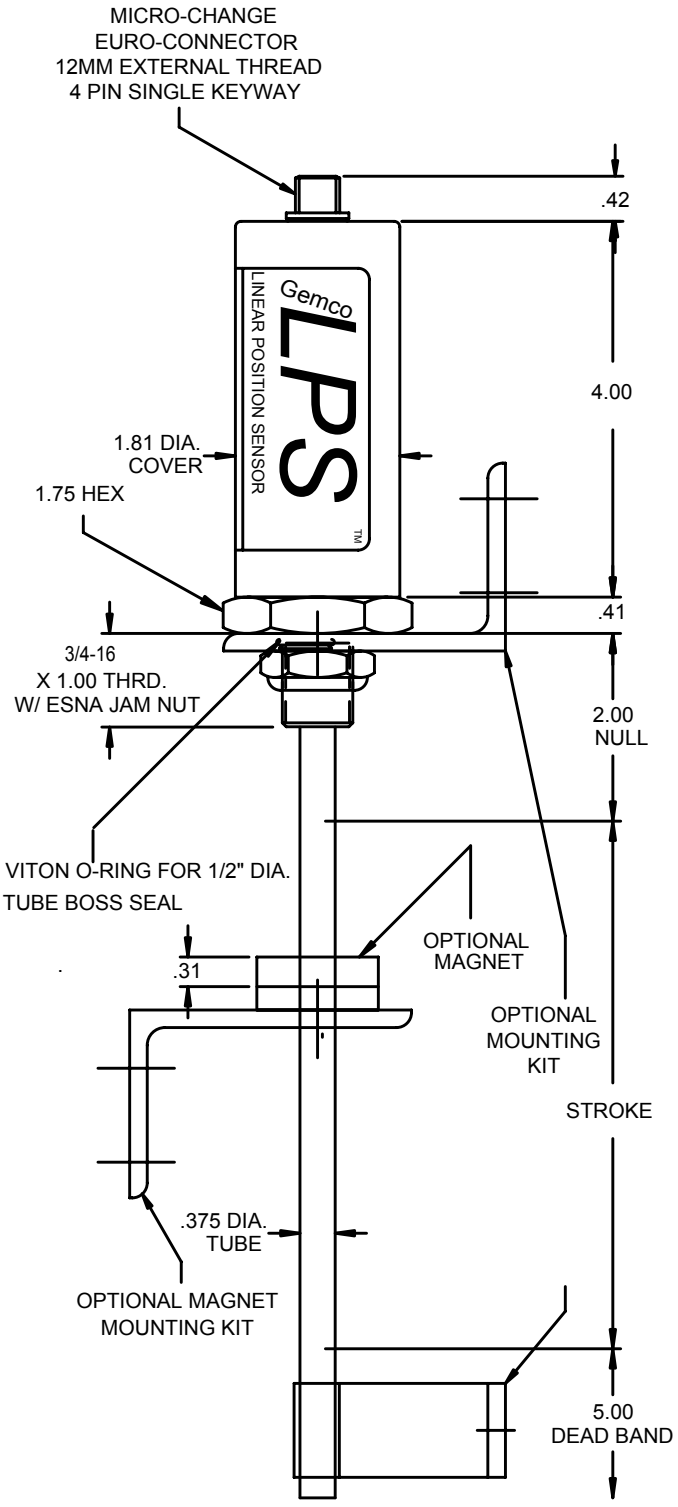
Connector View

4-20 mA Loop Powered



Euro Connector
(micro 12 mm single keyway)

Connector View



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950IS Intrinsically Safe

The Gemco Intrinsically Safe LDT

The 950IS can be used in hazardous environments when connected to an approved safety barrier. The LDT is UL & CSA listed for Class I, Group C & D, Class II, Groups E, F, & G and Class III hazardous locations, when properly installed.

The term 'Intrinsically Safe' is used to describe electronic equipment that has the ability to be mounted directly in explosive atmospheres without chance of an explosion. The term 'Intrinsically Safe' pertains to a device's inability to produce an electrical spark of enough significance to cause ignition.

How does an Intrinsically Safe LDT work? A Gemco Transmitter (950-1446) is located in a "safe" or "non-explosive" area which accepts the system's supply voltage (115 VAC, 230 VAC, or 24 VDC) and generates the LDTs positional output signal in voltage or current. The transmitter also generates and accepts the LDT signals. These signals are driven through an approved intrinsically safe barrier assuring the safety of the system. Custom 950 Mill Duty enclosures are available for this LDT.

Specifications	
Input Voltage/ Current Draw	24 VDC @ 85 mA max. 115 VAC 50/60 Hz @ 6 VA 230 VAC 50/60 Hz @ 6 VA
Output	0 - 10 VDC or 10 - 0 VDC 4 - 20 mA or 20 - 4 mA
Non-linearity/Accuracy	.01"
Repeatability	+/- 0.01% of Full Stroke
Operating Temperature **1) Head Electronics** **2) Guide Tube**	 -10° to 180° F (-23° to 82° C) -40° to 185° F (-40° to 85° C)
Operating Pressure	3000 psi Operational, 8000 psi Spike
Span Length	1" - 300"
Null Zone	2"
Dead Zone	5"
Connectors	2 Pin 12mm
Enclosure	IP65
Specifications are subject to change without notice.	

Part Numbering

9501446 — 24 — 0120

Analog Transceiver For 950IS LDT

Input Voltage
24 = 24 VDC Input Power
115 = 115 VAC Input Power
230 = 230 VAC Input Power

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

9501445 — 0120

Series 950IS Intrinsically Safe LDT

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 inch stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

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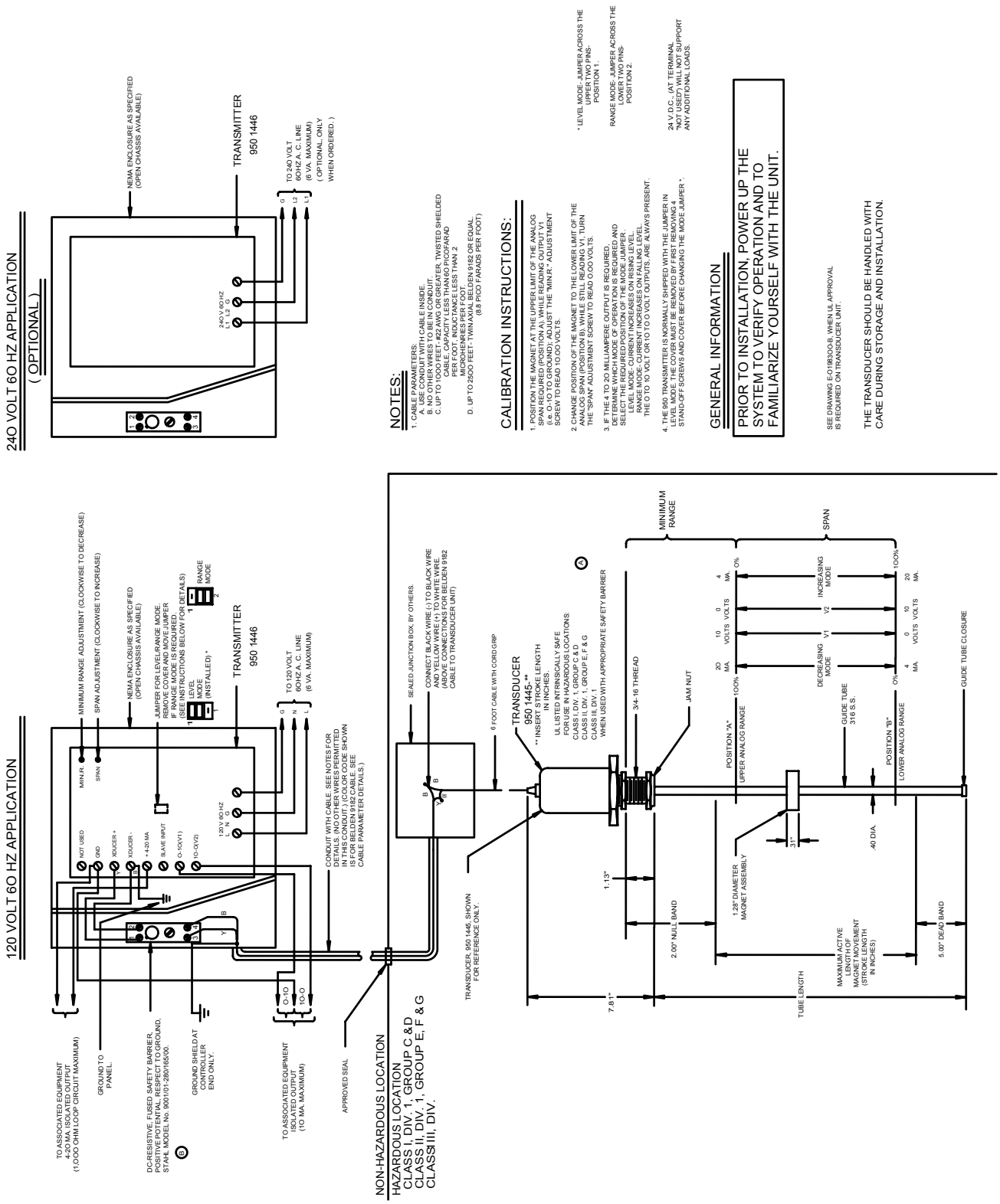
Dimensions & Wiring Diagram



950

951 Quik-Stik II

The Gemco Quik-Stik II

Gemco brand position sensing products have been known for reliability and high resolution. We have taken over twenty years experience in magnetostrictive linear sensors and married it with our understanding of rugged industrial applications to develop the Quik-Stik II LDT, with patented design for high resolution magnetostrictive linear sensing.

The Quik-Stik II LDT is field proven to provide top performance & repeatability. The on-board microprocessor is programmed to compensate for variables and to linearize outputs, providing high resolution and linearity. The Quik-Stik II LDTs rugged sensing tube construction is welded stainless steel, suitable for insertion in 5000 PSI hydraulic cylinders. The electronics are enclosed behind an anodized housing with O-ring seals for IP67 indoor applications (Type 6 rating available as a special option). There is no need to re-calibrate the sensor once installed.

The Quik-Stik II LDT is available in Analog, Start/Stop Pulse, Control Pulse or Variable Pulse versions. The analog style units offer 16 bits of resolution and are available with voltage or current outputs. The output format, voltage or current, is hardware specified. If voltage outputs are specified, the unit can be programmed for voltage type 5 VDC or 10 VDC, polarity, span, and zero reference point. The ability to select voltage type and polarity allows selection of 0 - 5 VDC, 0 - 10 VDC, -5 to 5 VDC, or -10 VDC to 10 VDC output. The current-type units are programmable for polarity, span, and zero reference. The units are programmable via a hand-held programmer or RS232 serial communications.

The Quik-Stik II LDT, with its high resolution and industrial construction, is at home in areas such as assembly automation, material handling, robotics, and any other industrial area where highly accurate and reliable continuous linear position sensing is needed. Units are available with radiused (curved) probes and in a rugged mill-duty housing.

Specifications	
Input Voltage	15 VDC to 26 VDC
Current Draw	< 200 mA at 15 VDC
Output **1) Analog** **2) Digital**	Absolute Analog Position via Digital-to-Analog Converter -10 to 10 VDC 16-Bit (65,535) Resolution 0 to 10 VDC 15-Bit (32,768) Resolution -5 to 5 VDC 15-Bit (32,768) Resolution 0 to 5 VDC 14-Bit (16,384) Resolution 4 to 20 mA 16-Bit (65,535) Resolution TTL Level Pulse/Pulse, RS422 Pulse/Pulse RS422 Pulse Width Modulated
Resolution **1) Internal** **2) Analog Output**	.001" 16 Bit (One Part In 65,535)
Non-linearity/Accuracy	Less than 0.05% of Full Stroke with +/- 0.002" (+/- 0.05 mm) Maximum
Repeatability	+/- 0.001% of Full Scale or +/- 0.0004" (0.102 mm), whichever is greater
Hysteresis	.001" (.025 mm) Maximum
Operating Temperature **1) Head Electronics** **2) Guide Tube**	-40° to 155° F (-40° to 70° C) -40° to 220° F (-40° to 105° C)
Operating Pressure	5000 psi Operational, 10,000 psi Spike
Span Length	1" - 300"
Null Zone	1.5"
Dead Zone	2.25"
Connectors	1/4 Turn MS Style Connector Standard. Potted Pigtail Assembly Available Optionally
Update Time	2 mS Typically
Enclosure	IP67
Specifications are subject to change without notice.	

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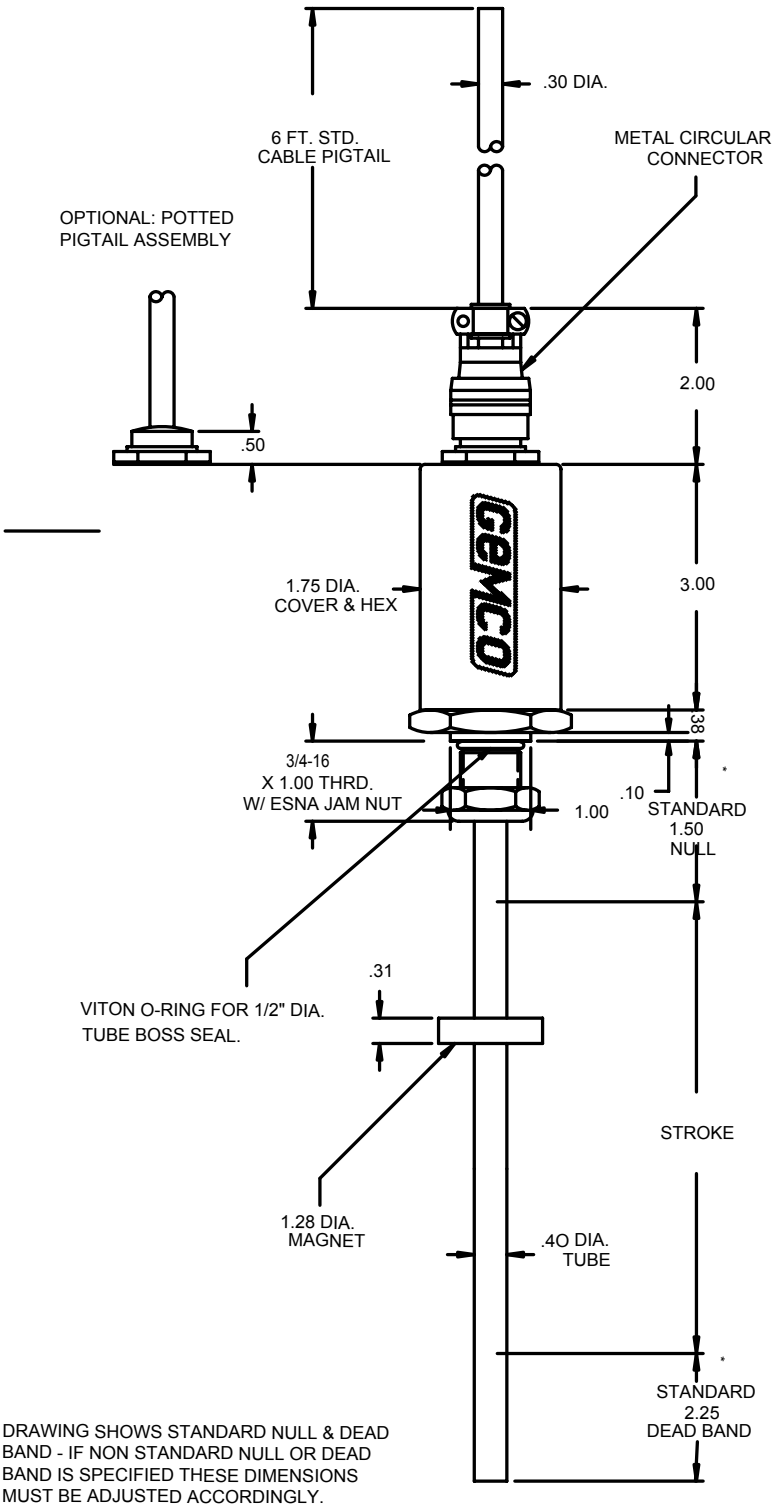
Dimension Drawing



* NOTE: DRAWING SHOWS STANDARD NULL & DEAD BAND - IF NON STANDARD NULL OR DEAD BAND IS SPECIFIED THESE DIMENSIONS MUST BE ADJUSTED ACCORDINGLY.

Part Numbering

951A — V — 0120 — X — X — E

Analog Quik-Stik II

Output Type
V = Voltage
C1 = 4 to 20 mA Grounded (sourcing)
C2 = 4 to 20 mA Ungrounded (sinking)

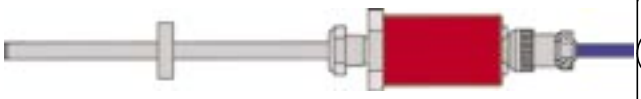
Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Null Dimension
X = Standard 1.5 inch Null
N□ = Insert non-standard Null over 1.5 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

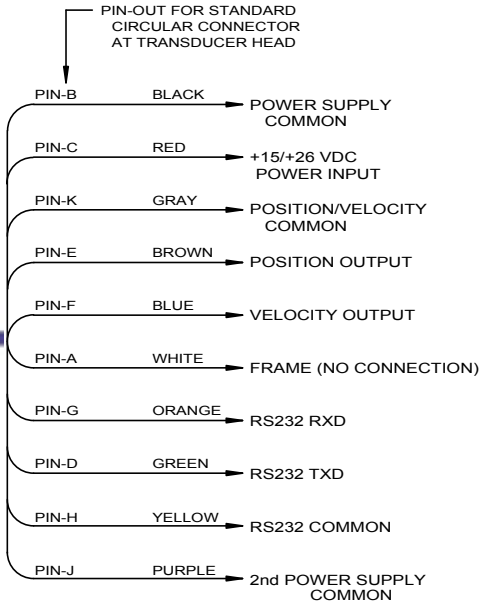
Dead Zone
X = Standard Dead Zone of 2.25 inches
D□ = Insert non-standard Dead Zone over 2.25 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
E = Environmental MS Connector*
C□ = Potted Pigtail Cable Assembly. Insert pigtail length in feet.
T = Threaded Metal Connector (fits MTS - "RB" on Tempo II™ or III)
Q = Bayonet Style Connector (fits MTS - "RC" on Tempo II™ or III)
M = 1/4 Turn Quick Disconnect (fits MTS - "MS" on Tempo II™ or III)

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately. **Note 1:** On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used. **Note 2:** Specify magnet style desired as separate line item (standard magnet is SD0400800).



Wiring Diagram



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Part Numbering

951CP — 0120 — X — X — E

Control Pulse Quik-Stik II

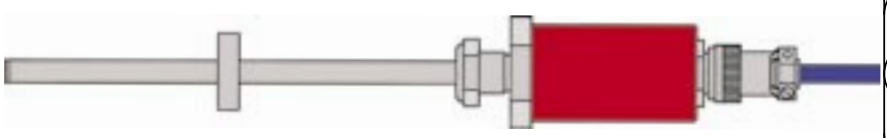
Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Null Dimension
X = Standard 1.5 inch Null
N□ = Insert non-standard Null over 1.5 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

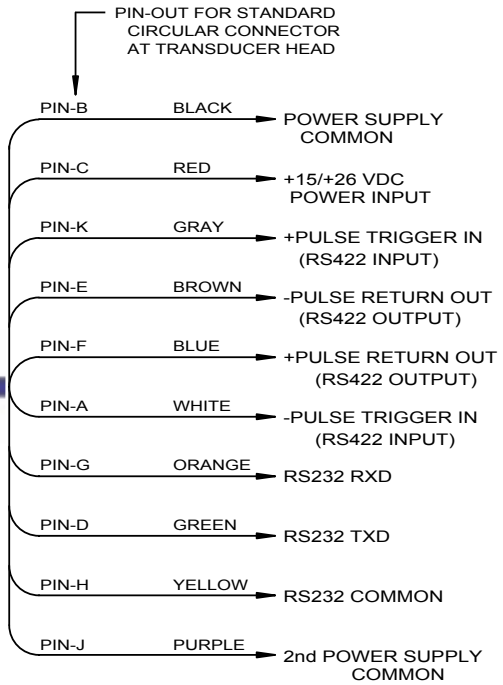
Dead Zone
X = Standard Dead Zone of 2.25 inches
D□ = Insert non-standard Dead Zone over 2.25 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
E = Environmental MS Connector*
C□ = Potted Pigtail Cable Assembly. Insert pigtail length in feet.

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately.
Note 1: On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used.
Note 2: Specify magnet style desired as separate line item (standard magnet is SD0400800).



Wiring Diagram



Part Numbering

951VP — 0120 — X — X — I — E

951VP — Variable Pulse Quik-Stik II

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

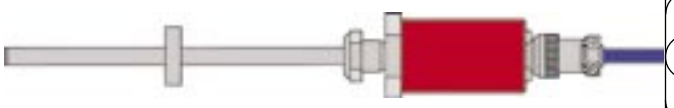
Null Dimension
X = Standard 1.5 inch Null
N□= Insert non-standard Null over 1.5 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

Dead Zone
X = Standard Dead Zone of 2.25 inches
D□ = Insert non-standard Dead Zone over 2.25 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

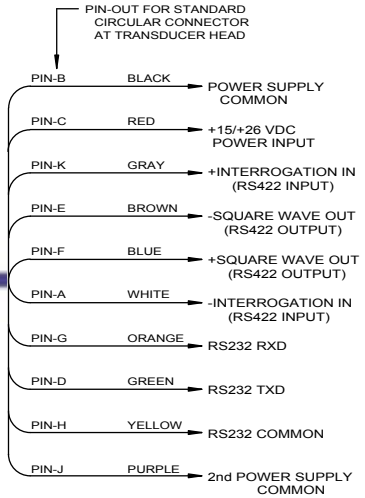
Interrogation Mode
I = Internal Interrogation
E = External Interrogation

Connector Style
E = Environmental MS Connector*
C□ = Potted Pigtail Cable Assembly. Insert Pigtail length in feet.
T = Threaded Metal Connector (fits MTS - "RB" on Tempo II™ or III)
Q = Bayonet Style Connector (fits MTS - "RC" on Tempo II™ or III)
M = 1/4 Turn Quick Disconnect (fits MTS - "MS" on Tempo II™ or III)

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately.
Note 1: On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used. **Note 2:** Specify magnet style desired as a separate line item (standard magnet is SD0400800). **Note 3:** The unit is field programmable (via PC or hand-held programmer) for number of recirculations.
Note 4: Recirculations from 1-128 (in binary increments) are available. The recirculations are programmed via RS232.



Wiring Diagram



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Part Numbering

951RS — 0120 — X — X — E

RS422 Start/Stop

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

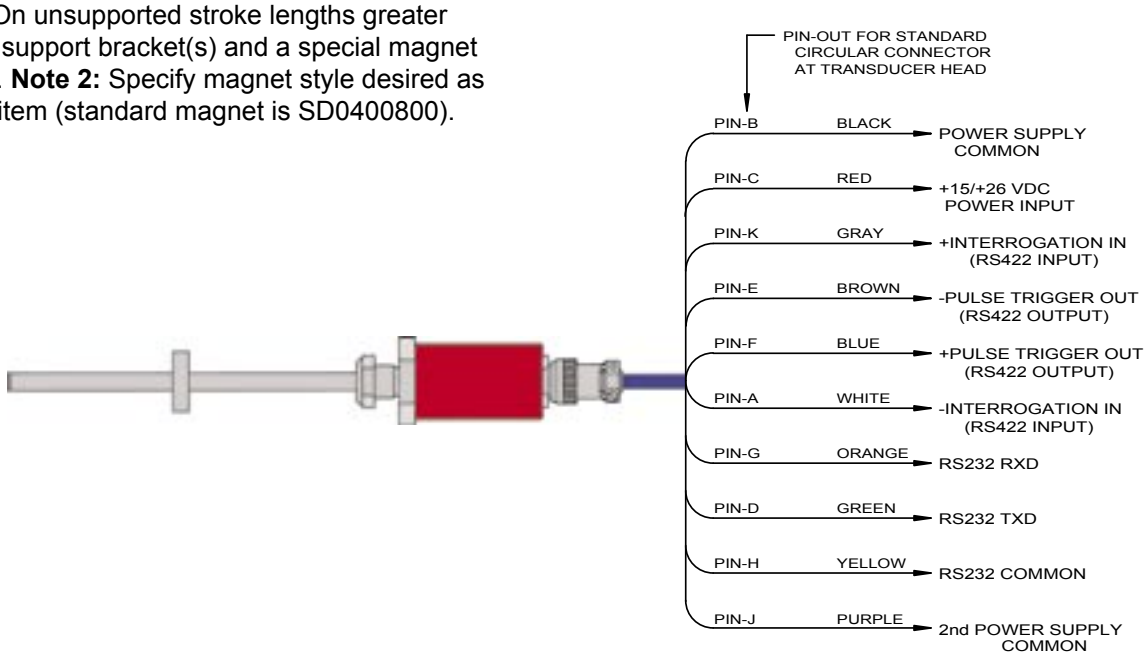
Null Dimension
X = Standard 1.5 inch Null
N□= Insert non-standard Null over 1.5 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

Dead Zone
X = Standard Dead Zone of 2.25 inches
D□= Insert non-standard Dead Zone over 2.25 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
E = Environmental MS Connector*
C□= Potted Pigtail Cable Assembly. Insert Pigtail length in feet.
T = Threaded Metal Connector (fits MTS - "RB" on Tempo II™ or III)
Q = Bayonet Style Connector (fits MTS - "RC" on Tempo II™ or III)
M = 1/4 Turn Quick Disconnect (fits MTS - "MS" on Tempo II™ or III)

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately. **Note 1:** On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used. **Note 2:** Specify magnet style desired as a separate line item (standard magnet is SD0400800).

Wiring Diagram



Part Numbering

951TP — 0120 — X — X — E

TTL Level Start/Stop Pulse Quik-Stik II

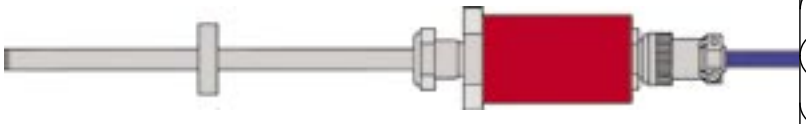
Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Null Dimension
X = Standard 1.5 inch Null
N□= Insert non-standard Null over 1.5 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

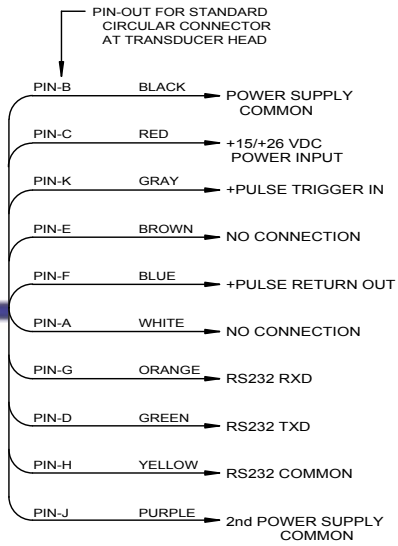
Dead Zone
X = Standard Dead Zone of 2.25 inches
D□= Insert non-standard Dead Zone over 2.25 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
E = Environmental MS Connector*
C□= Potted Pigtail Cable Assembly. Insert Pigtail length in feet.
T = Threaded Metal Connector (fits MTS - "RB" on Tempo II™ or III)
Q = Bayonet Style Connector (fits MTS - "RC" on Tempo II™ or III)
M = 1/4 Turn Quick Disconnect (fits MTS - "MS" on Tempo II™ or III)

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately.
Note 1: On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used.
Note 2: Specify magnet style desired as separate line item (standard magnet is SD0400800).



Wiring Diagram



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952 BlueOx

Magnetostrictive LDT
for High Shock and Vibration Areas

Gemco brand position sensing products have been known for survival in harsh industrial environments. We have taken over twenty years experience in magnetostrictive linear sensors and married it with our understanding of rugged industrial sensors to develop the BlueOx LDT as the industry's first truly rugged magnetostrictive linear transducer.

The BlueOx LDT is lab tested and field proven to stand up to high shock and vibration. With test results of 2,000 G's of shock and 30 G's of random vibration without false signals or mechanical damage, the BlueOx LDT is ready to perform on the most demanding applications.

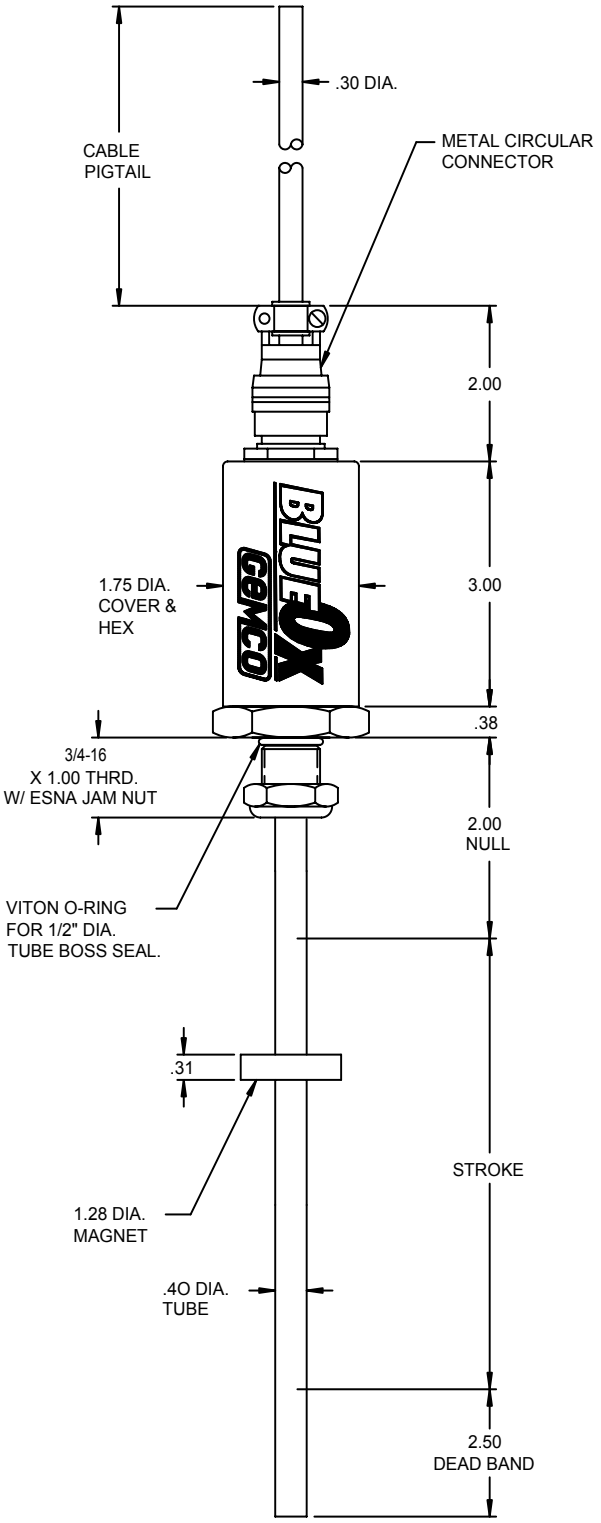
In addition to its ability to withstand shock and vibration, the BlueOx LDT is rugged in other ways. Sensing tube construction is welded stainless steel, suitable for insertion in 5000 PSI hydraulic cylinders. The electronics are enclosed behind an aluminum housing with O-ring seals for IP67 indoor applications (Type Nema 6 rating and stainless steel covers and connectors are available as a special option).

The Series 952 BlueOx is available with Analog, Control Pulse, Variable Pulse or RS422 Start/Stop outputs. The Series 952 is compatible with PLC interface cards and our Series 1746 LDT Interface Card. The 16 bit resolution analog output is programmable over the entire active stroke length. The units can easily be changed in the field from a 0 - 10 VDC to a 10 - 0 VDC or a 4 - 20 mA to a 20 - 4 mA. As an added feature, the optional differential analog output allows the distance between two magnets to be measured.

The BlueOx, with its high resolution and rugged construction, is at home in heavy duty areas such as lumber mills, steel mills, stamping plants, assembly automation, material handling, robotics and any other industry where highly accurate and reliable continuous linear position sensing is needed.

Specifications	
Input Voltage	Analog: 13.5 - 30 VDC Digital: 13.5 - 26.4 VDC, or +/- 15 VDC
Current Draw	< 200 mA at 15 VDC
Output	Analog: 0 - 10 VDC or 10 - 0 VDC, 4 - 20 mA or 20 - 4 mA Digital: Start/Stop, Control Pulse or Pulse-Width Modulated/ Variable Pulse (PWM/VP)
Resolution **1) Internal** **2) Analog Output**	 0.001" 16 Bit (1 part in 65,535)
Non-linearity/Accuracy	+/-0.05% of Full Scale
Repeatability	+/-0.006% of Full Scale (+/- .002 inch min.)
Hysteresis	+/-.02% of Full Scale
Operating Temperature **1) Head Electronics** **2) Guide Tube**	 -40° to 158° F (-40° to 70° C) -40° to 221° F (-40° to 105° C)
Operating Pressure	5000 psi Operational, 10,000 psi Spike
Span Length	2" - 168"
Null Zone	2"
Dead Zone	2.5"
Connectors	12mm Micro 5 Pin, CE Approved (Analog Only), 10 Pin 1/4 Turn MS Style Connector, Potted Pigtail Assembly, Optional Temposonics II & III Connectors
Update Time **Analog** **Digital**	 1ms (Stroke Lengths 1" to 50") 2ms (Stroke Lengths 51" to 100") 3ms (Stroke Lengths 101" to 150") 4ms (Stroke Lengths 151" to 168") Controller Dependent
Enclosure	IP67
Approvals	CE (Analog 12mm Micro 5 Pin Connector Only)
Specifications are subject to change without notice. Specifications are based on a typical 36" LDT .	

Dimension Drawing



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Part Numbering

952A — V0 — 0120 — X — X — E

952A
Analog BlueOx

Output Type
V0 = 0 - 10 VDC
V1 = 10 - 0 VDC
C4 = 4 - 20 mA
C2 = 20 - 4 mA
D0 = Differential 0 - 10 VDC*
D1 = Differential 4 - 20 mA *
*Analog differential output is the difference between two magnets. Minimum distance is 2.5".

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number.
Example: 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value. On differential output units (D0 or D1) the active measuring range will be 2.5" less than the specified stroke due to the 2.5" magnet to magnet separation distance requirement.

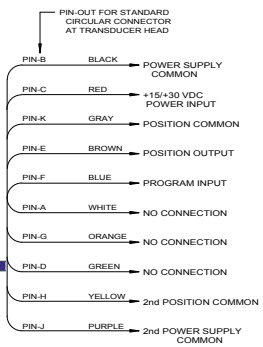
Null Dimension
X☐= Standard 2 inch Null
N = Insert non-standard Null over 2 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

Dead Zone
X = Standard Dead Zone of 2.5 inches
D☐= Insert non-standard Dead Zone over 2.5 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
S = Standard 12mm 5 pin Euro Connector (CE Approved)
E = Environmental MS Connector*
C☐= Potted Pigtail Cable Assembly. Insert Pigtail length in feet.
T = Threaded Metal Connector (fits MTS - "RB" on Tempo II™ or III)
Q = Bayonet Style Connector (fits MTS - "RC" on Tempo II™ or III)
M = 1/4 Turn Quick Disconnect (fits MTS - "MS" on Tempo II™ or III)
Consult factory for other connector options.

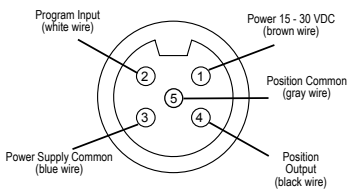
* If option S or E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately. **Note 1:** On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used. **Note 2:** Specify magnet as separate line item (standard magnet is SD0400800).

Wiring Diagram Option "E"



Wiring Diagram Option "S"

Use Euro Connector (micro 12 mm single keyway) cordsets, available from most connector manufacturers or purchased from Ametek.



LDT Connector View

Part Numbering

952CP — 0120 — X — X — E

952CP — Control Pulse BlueOx

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

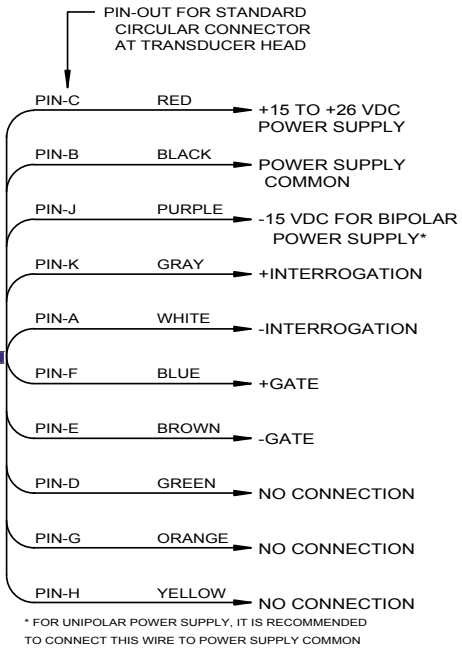
Null Dimension
X = Standard 2 inch Null
N□ = Insert non-standard Null over 2 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

Dead Zone
X = Standard Dead Zone of 2.5 inches
D□ = Insert non-standard Dead Zone over 2.2 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
E = Environmental MS Connector*
C□ = Potted Pigtail Cable Assembly. Insert Pigtail length in feet.

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately. **Note 1:** On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used. **Note 2:** Specify magnet as separate line item (standard magnet is SD0400800).

Wiring Diagram



Part Numbering

952VP — 0120 — X — X — E — I — 001

952VP — Variable Pulse BlueOx

0120 — **Stroke in Inches**
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

X — **Null Dimension**
X = Standard 2 inch Null
N□= Insert non-standard Null over 2 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

X — **Dead Zone**
X = Standard Dead Zone of 2.5 inches
D□= Insert non-standard Dead Zone over 2.5 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

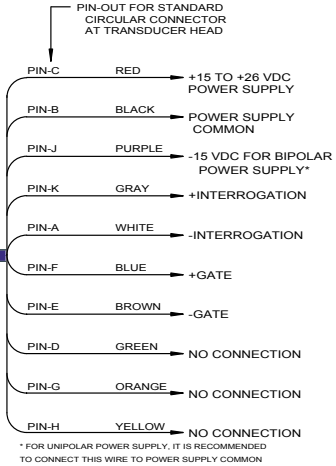
E — **Connector Style**
E = Environmental MS Connector*
C□= Potted Pigtail Cable Assembly. Insert Pigtail length in feet.
T = Threaded Metal Connector (fits MTS - "RB" on Tempo II™ or III)
Q = Bayonet Style Connector (fits MTS - "RC" on Tempo II™ or III)
M = 1/4 Turn Quick Disconnect (fits MTS - "MS" on Tempo II™ or III)

I — **Interrogation Mode**
I = Internal Interrogation
E = External Interrogation

001 — **Recirculations Required**
001 (standard) to 127

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately. **Note 1:** On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used. **Note 2:** Specify as magnet separate line item (standard magnet is SD0400800).

Wiring Diagram



952

Part Numbering

952RS — 0120 — X — X — E

952RS
RS422 Start/Stop with Interrogation Start Sequence Pulse BlueOx

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

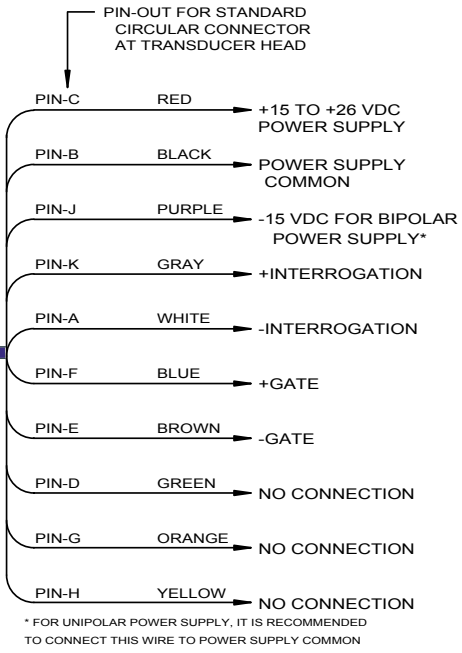
Null Dimension
X = Standard 2 inch Null
N□= Insert non-standard Null over 2 inches
(Add non-standard portion of Null length to stroke length to calculate list price)

Dead Zone
X = Standard Dead Zone of 2.5 inches
D□= Insert non-standard Dead Zone over 2.5 inches
(Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
E = Environmental MS Connector*
C□ = Potted Pigtail Cable Assembly. Insert Pigtail length in feet.
T = Threaded Metal Connector (fits MTS - "RB" on Tempo II™ or III)
Q = Bayonet Style Connector (fits MTS - "RC" on Tempo II™ or III)
M = 1/4 Turn Quick Disconnect (fits MTS - "MS" on Tempo II™ or III)

* If option E (environmental connector) is selected, mating connector and/or pigtail must be ordered separately. **Note1:** On unsupported stroke lengths greater than 4 feet, rod support bracket(s) and a special magnet should be used. **Note 2:** Specify magnet as separate line item (standard magnet is SD0400800).

Wiring Diagram



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952QD BlueOx with Quadrature Output

Magnetostrictive LDT with Quadrature Output

The BlueOx Quadrature is a magnetostrictive linear displacement transducer (LDT) for continuous machine positioning in a variety of industrial applications. The quadrature output makes it possible for customers to have a direct interface to virtually any incremental encoder input or counter card, eliminating costly absolute encoder converters and special PLC interface modules.

The BlueOx Quadrature LDT is lab tested and field proven to stand up to high shock and vibration without effect. With test results of 2,000 G's of shock and 30 G's of random vibration without false signals or mechanical damage, the BlueOx Quadrature LDT is ready to perform in the most demanding applications.

The BlueOx Quadrature LDT can be ordered with 1 to 9999 cycles per inch of output resolution and the position data is absolute. The transducer features an input to re-zero the probe "on the fly". Another unique feature is the "burst" mode. An input on the transducer triggers a data transfer of all the incremental position data relative to the transducer's absolute zero position. This can be used to achieve absolute position updates when power is restored to the system.

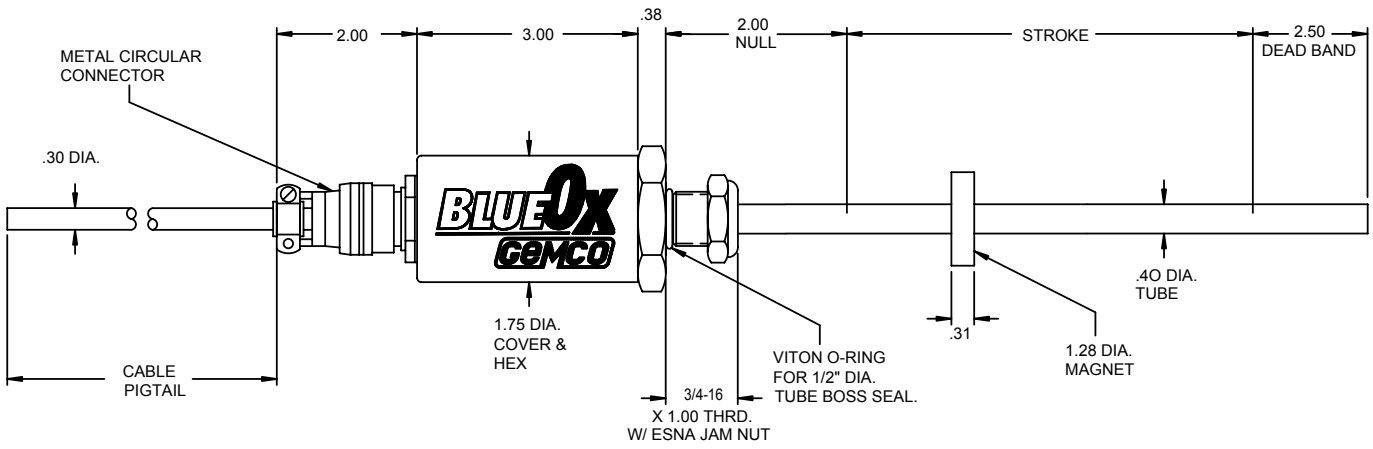
The BlueOx Quadrature is shipped from the factory pre-calibrated and ready for installation. In addition to its ability to withstand shock and vibration, the BlueOx Quadrature is rugged in other ways. Sensing tube construction is welded stainless steel, suitable for insertion in 5,000 PSI hydraulic cylinders.

The electronics are enclosed behind an aluminum housing with O-ring seals. The BlueOx Quadrature LDT, with its rugged construction, is at home in heavy duty areas such as lumber mills, steel mills, stamping plants and any other harsh environment where accurate and reliable continuous linear position sensing is needed.

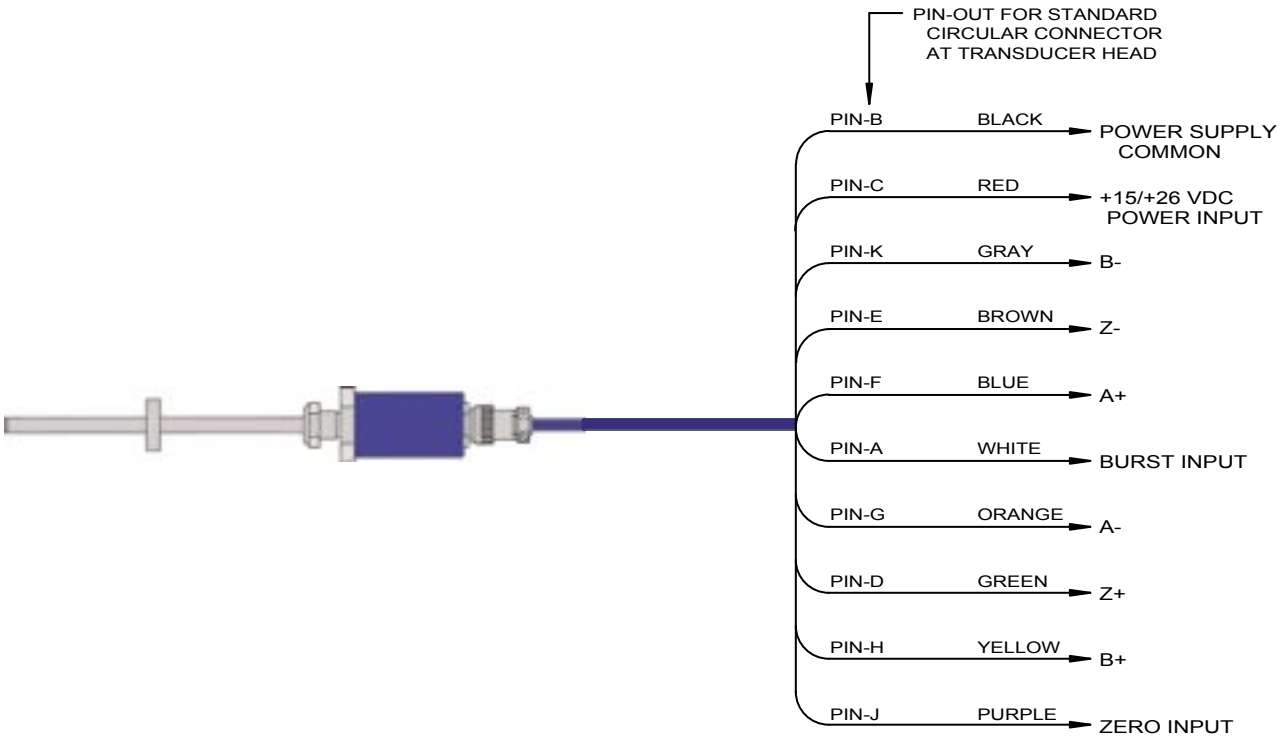
Specifications	
Input Voltage	13.5 - 26.4 VDC
Current Draw	< 200 mA at 15 VDC
Output	Quadrature Output A+, A-, B+, B-, Z+, Z-. Line Drivers: 5V or Input Power
Inputs	10 - 30 VDC
Resolution	0.001"
Non-linearity/Accuracy	<.05% (+/- .002" Min)
Repeatability	0.001% of Full Stroke (+/- .002" Min.)
Hysteresis	+/-.02% of Full Scale
Operating Temperature 1) Head Electronics 2) Guide Tube	 -40° to 155° F (-40° to 70° C) -40° to 220° F (-40° to 105° C)
Operating Pressure	5000 PSI Operational, 10,000 PSI Spike
Span Length	2" - 168"
Null Zone	2.0"
Dead Zone	2.5"
Connectors	1/4 Turn MS Style Connector Standard. Potted Pigtail Assembly Available Optionally
Update Time	Approx. 1mS for < 60" Approx. 2mS for > 60" to < 120" Approx. 3mS > 120"
Enclosure	IP67
Specifications are subject to change without notice. Specifications are based on a typical 36" LDT .	

952QD BlueOx with Quadrature Output

Dimension Drawing



Wiring Diagram



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952QD BlueOx with Quadrature Output

Part Numbering

952QD — 0120 — X — X — E — 1000 — E — F7 — M1 — N — D — X

952QD — **BlueOx with Quadrature Output**

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Null Dimension
X = Standard 2 inch Null
N□ = Insert non-standard Null over 2 inches (Add non-standard portion of Null length to stroke length to calculate list price)

Dead Zone
X = Standard Dead Zone of 2.5 inches
D□ = Insert non-standard Dead Zone over 2.5 inches (Add non-standard portion of Dead Zone length to stroke length to calculate list price)

Connector Style
E = Environmental MS Connector*
C□ = Potted Pigtail Cable Assembly. Insert Pigtail length in feet.

Output Resolution
Cycles per inch, maximum internal resolution is 0.001 inches
1000 standard (available range is 0001 through 9999)

Input Type
E = Sinking (typically used with sourcing output type)
C = Sourcing (typically used with sinking output type)
T = TTL Level

Quadrature Cycle Output Frequency Range
F1 = 10 KHz F2 = 25 KHz F3 = 50 KHz F4 = 75 KHz
F5 = 100 KHz F6 = 150 KHz F7 = 250 KHz F8 = 500 KHz F9 = 1.00 MHz

Output Mode
M1 = X1 quadrature, Consult factory for other output modes.

Zero Offset Storage
V = Volatile (non retentive)
N= Nonvolatile (retentive, 100,000 storage cycles maximum).

Output Drivers
D= Differential RS422 line driver, TTL compatible
L= Differential line driver 10 - 30 VDC, V out = V in (LDT Power) -1 volt

Options
X = None

955LC BRIK

Magnetostrictive LDT
In A Low Profile Package

The 955LC BRIK is an accurate, programmable zero and span, non-contact linear position sensor in an economical, low profile package. The sensor utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .01% of the sensing distance. The 955LC is a cost effective linear sensing solution, designed for the OEM market.

The transducer can be ordered with 0-10 VDC or 4-20 mA. The unit can easily be re-scaled and changed from a 0-10 VDC to a 10-0 VDC or 4-20 mA to a 20-4 mA using programming module 955-1412. All units are provided with a standard quick disconnect connector. The streamlined anodized aluminum extrusion houses the sensing element and electronics. The magnet slide moves over the sensing element that determines the position and converts it to a readable output.

The 955LC BRIK is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than one inch tall. Units can be ordered in span lengths up to 180 inches long in 0.1 inch increments. The magnet slide is designed to move effortlessly along the transducer in guide tracks.

A variety of hardware is available for attaching the magnet slide to the moving portion of the process. The transducer can be mounted vertically or horizontally using mounting feet which slide on the lower part of the extrusion and clamp down when tightened. This packaging provides a compact and easy method of mounting for OEM machine builders.

The 955LC BRIK is designed for OEM applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit switches, proximity sensors, linear potentiometers and LVDT's. Applications include presses, blow molding, injection molding, extrusion, roll positioning, dancer control and many more.

Specifications	
Input Voltage	24 VDC +/- 20%
Current Draw	100 mA Max.
Output	0 to 10 VDC 10 to 0 VDC 4 to 20 mA 20 to 4 mA
Linearity	+/- 0.05% of Stroke or +/- 0.028", Whichever is Greater
Accuracy	0.1% of Full Stroke
Repeatability	+/- 0.01% of Full Stroke or +/- 0.014", Whichever is Greater
Operating Temperature	-20° to 70° C
Span Length	6" to 180"
Null Zone	3.00"
Dead Zone	1.50"
Connector	Standard 4 Pin Micro 12mm Euro Connector
Agency Approvals	CE Approved
Enclosure	IP67
Specifcation may change without notice.	

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Part Numbering

955LC — V0 — 0120

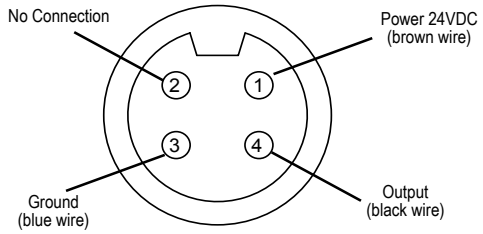
955LC BRIK

Output Type
V0 = 0 - 10 VDC
V1 = 10 - 0 VDC
C4 = 4 to 20 mA
C2 = 20 to 4 mA

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke to inches, multiply millimeter value by 0.03937.

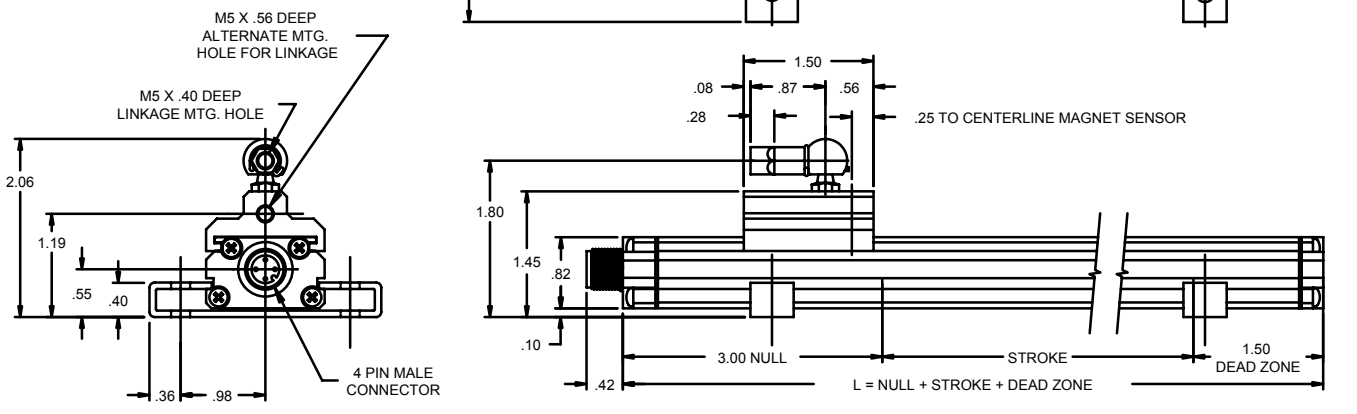
Wiring Diagram

Use Euro Connector (micro 12 mm single keyway) cordsets, available from most connector manufacturers or purchased from Ametek. Install according to the following diagrams:



Connector View

Accessories	
Item	**Part Number**
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
6 Ft. Cable	949001L6
12 Ft. Cable	949001L12
6 Ft. Cable; Right Angle Connector	949002L6
12 Ft. Cable; Right Angle Connector	949002L12
Program Module	955-1412



955S Smart BRIK

Magnetostrictive LDT
In A Low Profile Package

The 955S Smart BRIK is an accurate, programmable zero and span, auto-tuning, non-contact linear position sensor in an economical, low profile package. The sensor utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .01% of the sensing distance. The 955S Smart BRIK is a cost effective linear sensing solution.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The magnet slide moves over the sensing element that determines the position and converts it to a readable output. The 955S Smart BRIK is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than one inch tall. Units can be ordered in span lengths up to 180 inches long in 0.1 inch increments. The magnet slide is designed to move effortlessly along the transducer in guide tracks or a floating magnet assembly can be positioned above the unit.

A variety of hardware is available for attaching the magnet slide to the moving portion of the process. The transducer can be mounted vertically or horizontally using our mounting feet which slide on the lower part of the extrusion and clamp down when tightened. This packaging provides a compact and easy method of mounting for machine builders.

The transducer can be ordered with 0-10 VDC, 4-20 mA, or -10 to 10 VDC output. All units are provided with a standard quick disconnect connector. A unique feature is the diagnostic LED that remains green when a good magnet signal is present and when in the active programmed area. The LED turns yellow when the magnet is out of the programmed active range but still within the active stroke area. The LED turns red when there is no magnet present or the magnet assembly is out of the sensing area.

The 955S Smart BRIK is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit and proximity sensors and linear potentiometers. Applications include presses, blow molding, injection molding, extruding, roll positioning and many more.

Specifications	
Input Voltage	10 - 30 VDC
Current Draw	100 mA Max.
Output	V0 = 0 - 10 VDC V1 = 10 - 0 VDC V2 = -10 to 10 VDC V3 = 10 to -10 VDC V4 = 0 to 5 VDC V5 = 5 to 0 VDC V6 = -5 to 5 VDC V7 = 5 to -5 VDC C4 = 4 to 20 mA C2 = 20 to 4 mA
Linearity	+/- 0.05% of Full Stroke
Accuracy	+/- 0.1% of Full Stroke
Repeatability	+/- 0.01% of Full Stroke
Operating Temperature	-40° to 158° F (-40° to 70° C)
Span Length	4" - 180"
Null Zone	3"
Dead Zone	1.5"
Connectors	12mm Micro 4 Pin
Enclosure	IP67, IP68 Optional
Approvals	CE, FM Class I, Div 2 Optional
Specifications are subject to change without notice.	

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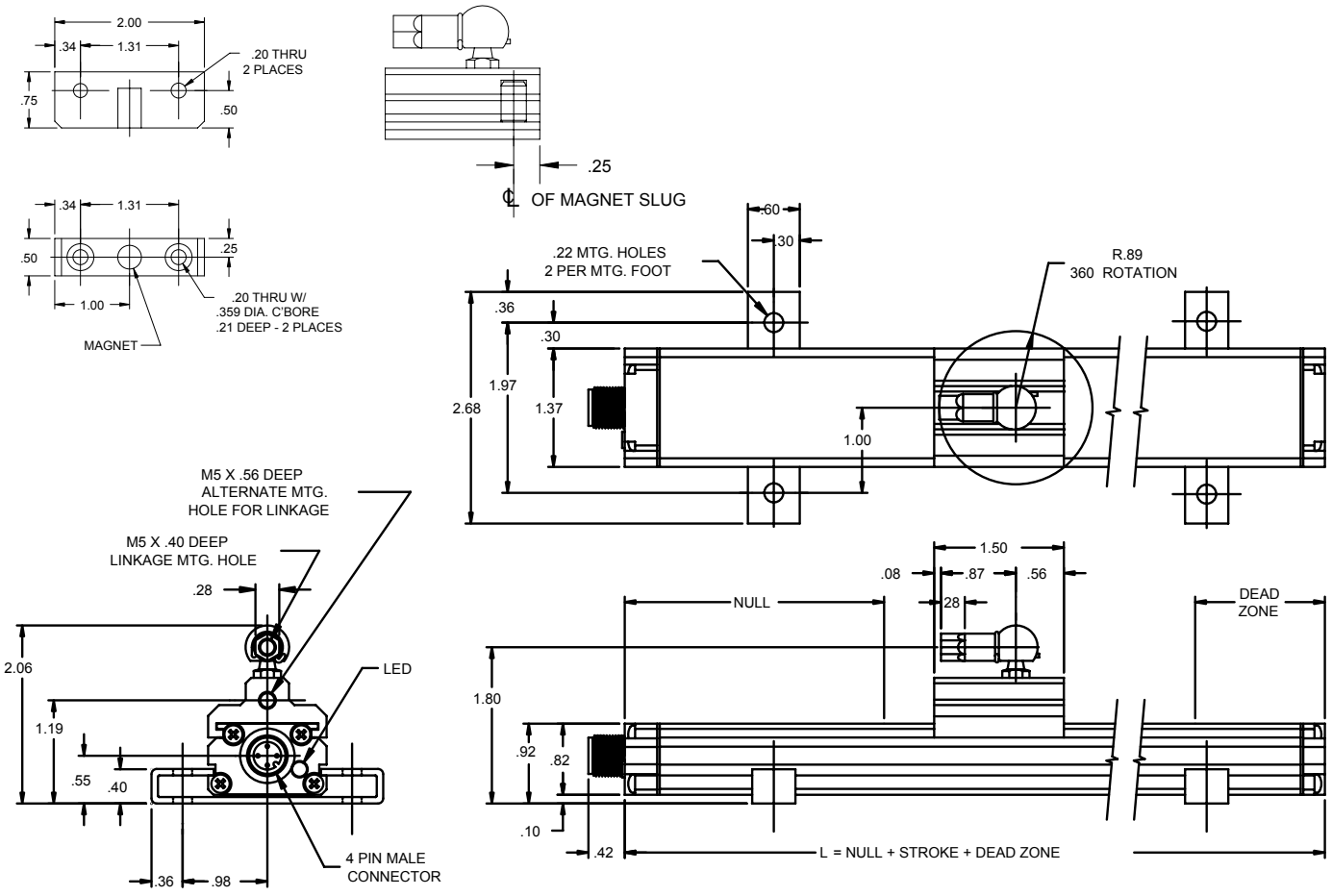
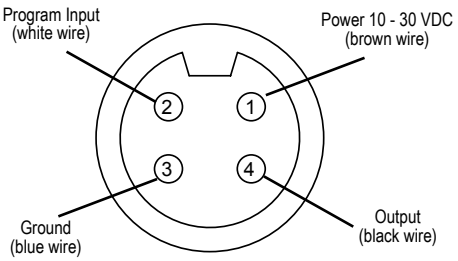
Dimension Drawing



Wiring Diagram

Use Euro Connector (micro 12 mm single keyway) cordsets, available from most connector manufacturers or purchased from Ametek. Install according to the following diagram:



LDT Connector View

Part Numbering

955S — **V0** — **0120** —

955S Smart BRIK

Output Type
V0 = 0 - 10 VDC
V1 = 10 - 0 VDC
V2 = -10 to 10 VDC
V3 = 10 to -10 VDC
V4 = 0 to 5 VDC
V5 = 5 to 0 VDC
V6 = -5 to 5 VDC
V7 = 5 to -5 VDC
C4 = 4 to 20 mA
C2 = 20 to 4 mA

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Optional Approval
Leave blank for no options
FM = FM approved, Class 1, Div 2
E = Wet Environment, electronics sealed to IP 68 Rating.

Accessories	
Item	**Part Number**
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
6 Ft. Cable	949001L6
12 Ft. Cable	949001L12
6 Ft. Cable; Right Angle Connector	949002L6
12 Ft. Cable; Right Angle Connector	949002L12
Control Arm	955ARMXX (X = Inches)
Rod End	04-570252

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955A BRIK Gen III

Gemco Series 955A BRIK Gen III

The 955A BRIK Gen III is an accurate programmable, auto-tuning, non-contact, linear displacement transducer in an economical, low profile package. The transducer utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .006% of the programmable sensing distance.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The magnet moves over the sensing element that determines the position and converts it to an analog output. It can be ordered with a 0 to 10 VDC or 4 to 20 mA output.

The 955A BRIK Gen III has a few truly unique features. The first one is the LDT's auto-tuning capability, the ability to sense a magnet other than the standard slide magnet and adjust its signal strength accordingly. Another feature is the analog output is programmable over the entire active stroke length. The active stroke area of the LDT lies between the Null and Dead zones. There is a diagnostic LED located at the connector end of the probe that remains green while a good magnet signal is present and when the magnet is in the programmed stroke area. The LED turns yellow when the magnet is out of the programmed active range, but still within the active stroke area. The LED turns red and the output goes to 0 volts on voltage output units, or 4 mA on current output units when there is no magnet present or when the magnet is out of the sensing area. The unit can easily be changed in the field from a 0 - 10 VDC to a 10 - 0 VDC or 4 - 20 mA to a 20 - 4 mA . As an added feature, the optional differential analog output allows the distance between two magnets to be measured.

The 955A BRIK is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit switches, proximity sensors, linear potentiometers and LVDT's. Applications include presses, blow molding, injection molding, extrusion, roll positioning, dancer control and many more.

Specifications	
Input Voltage	13.5 to 30 VDC
Current Draw	2.5 Watts Maximum, 120 mA @ 15 VDC Typical
Output	0 to 10 VDC, 10 to 0 VDC, 4 to 20 mA, 20 to 4 mA
Resolution **1) Internal** **2) Analog Output**	 0.001" 16 Bit (1 part in 65,535)
Non-Linearity	+/- 0.05% of Stroke
Repeatbility	+/- 0.006% of Full Stroke
Hysteresis	+/- 0.02% of Full Scale
Update **50" or less** **51" to 100"** **101" to 150"** **151" to 180"**	 1mS (Stroke Lengths 5" - 50") 2mS (Stroke Lengths 51" - 100") 3mS (Stroke Lengths 101" - 150") 4mS (Stroke Lengths 151" - 180")
Operating Temperature	-20° to 70° C
Span Length	5" to 180"
Null Zone	3.00"
Dead Zone	2.00"
LED	Green = Power is applied and magnet is present Red = Fault, magnet is in the Dead Zone or lost Yellow = Out of the active programmed range
Connector	Standard 5 Pin Micro 12mm Euro Connector
Approvals	CE
Enclosure	IP67, IP68 Optional
Specifications are subject to change without notice. Specifications are based on a typical 36" LDT.	

Part Numbering

955A — V0 — 0120 — X

955A Analog BRIK Gen III

Output Type

V0 = 0 - 10 VDC
V1 = 10 - 0 VDC
C4 = 4 to 20 mA
C2 = 20 to 4 mA
D0 = Differential 0 - 10 VDC*
D1 = Differential 4 - 20 mA *
*Analog differential output is the difference between two magnets. Minimum distance is 2.5".

Stroke in Inches

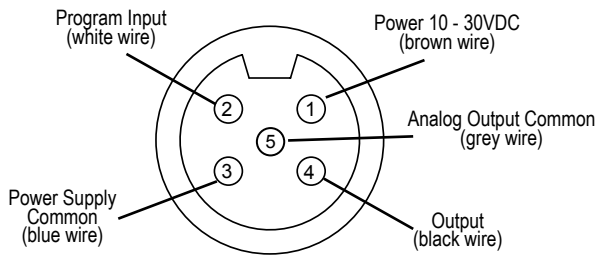
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Options

X = No options
E = Wet environment. Electronics sealed to IP 68 Rating.

Wiring Diagram

Use Euro Connector (micro 12 mm single keyway) cordsets, available from most connector manufacturers or purchased from Ametek. Install according to the following diagram:



Connector View

Accessories	
Item	**Part Number**
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
6 Ft. Cable	949019L6
12 Ft. Cable	949019L12
6 Ft. Cable; Right Angle Connector	949020L6
12 Ft. Cable; Right Angle Connector	949020L12

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955D BRIK Gen III

Gemco 955D Digital BRIK Gen III

The 955D Digital BRIK Gen III is an accurate programmable, auto-tuning, non-contact, linear displacement transducer in an economical, low profile package. The transducer utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .006% of the programmable sensing distance.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The magnet moves over the sensing element that determines the position and converts it to either a control pulse, variable pulse or RS422 Start/Stop digital output. The 955D is compatible with PLC Interface Cards and our Series 1746 LTD Interface Card.

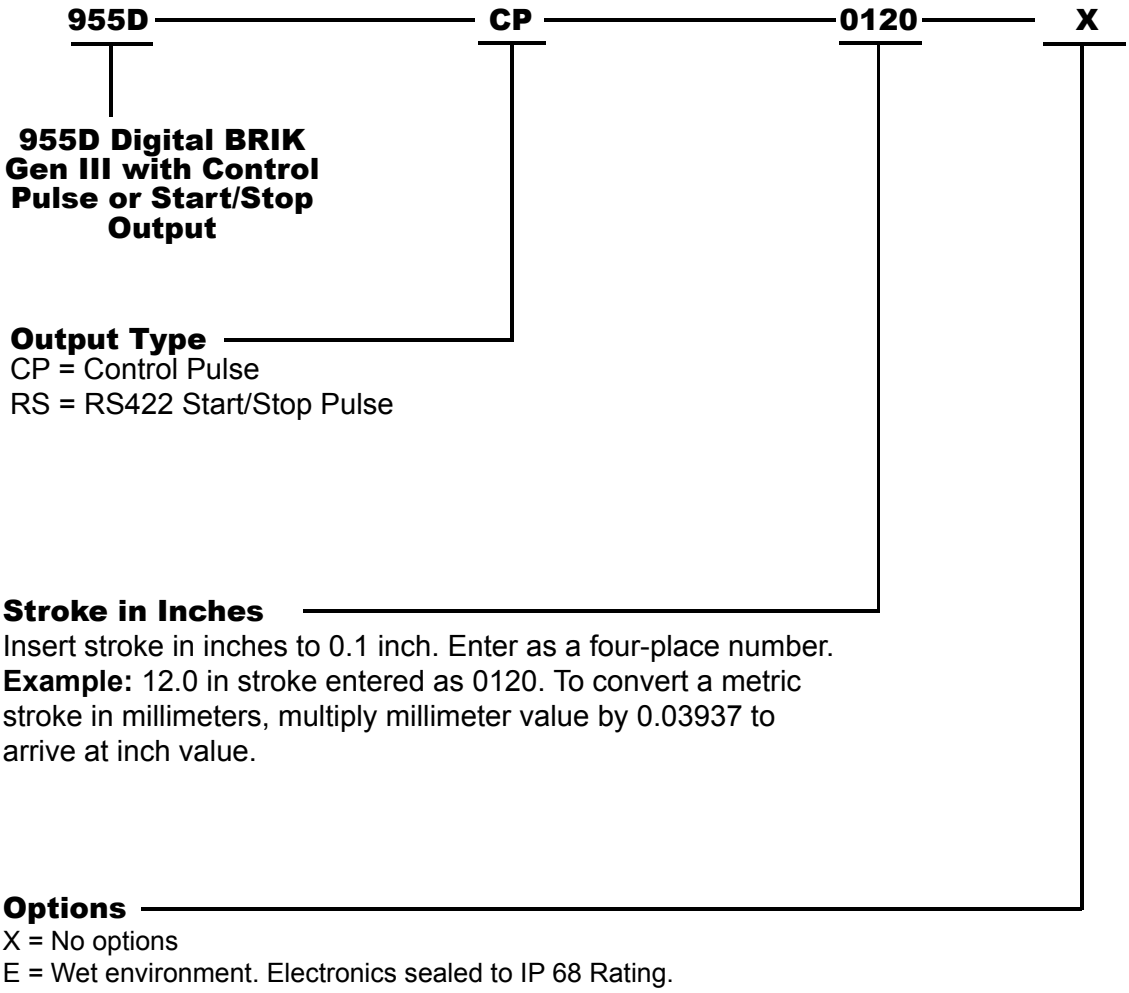
The 955D BRIK Gen III has some truly unique features. The first one is the LDT's auto-tuning capability, the ability to sense a magnet other than the standard slide magnet and adjust its signal strength accordingly.

There is a diagnostic LED located at the connector end of the probe that remains green while a good magnet signal is present and when the magnet is in the programmed stroke area. The LED turns yellow if no interrogation signal is detected. The LED turns red when there is no magnet present or when the magnet is out of the sensing area.

The 955D BRIK is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit switches, proximity sensors, linear potentiometers and LVDT's. Applications include presses, blow molding, injection molding, extrusion, roll positioning, dancer control and many more.

Specifications	
Input Voltage	13.5 to 30 VDC
Current Draw	2.5 Watts Maximum, 120 mA @ 15 VDC Typical
Output	Control Pulse, Variable Pulse, Stop/Start
Resolution	Controller Dependent
Non-Linearity	+/- 0.05% of Stroke
Repeatbility	+/- 0.006% of Full Stroke
Hysteresis	+/- 0.02% of Full Scale
Update	Controller Dependent
Operating Temperature	-20° to 70° C
Span Length	5" to 180"
Null Zone	3.00"
Dead Zone	2.00"
LED	Green = Power is applied and magnet is present Red = Fault, magnet is in the Dead Zone or lost Yellow = No Interrogation Signal
Connector	Standard 6 Pin Micro 12mm Euro Connector
Approvals	CE
Enclosure	IP67, IP68 Optional
Specifications are subject to change without notice. Specifications are based on a typical 36" LDT.	

Part Numbering



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Part Numbering

955D — **VP** — **0120** — **E** — **001** — **X**

955D BRIK Gen III Variable Pulse

Output
VP = Variable Pulse

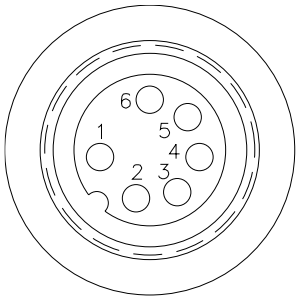
Stroke In Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Interrogation Mode
I = Internal Interrogation
E = External Interrogation

Number of Recirculations
001 (standard) to 127

Options
X = No options
E = Wet environment. Electronics sealed to IP 68 Rating.

Wiring Diagram



6 PIN CONNECTOR

Connector View

WIRE COLOR	6 PIN EURO CONN. DESIG.	PIN OUT
BROWN	1	PWR+
WHITE	2	OUT+
BLUE	3	GND
BLACK	4	OUT–
GRAY	5	INT–
PINK	6	INT+

955DQ BRIK Gen III

Magnetostrictive LDT
In A Low Profile Package

The 955DQ BRIK is an accurate, auto-tuning, non-contact linear displacement transducer in an economical, low profile package with direct quadrature output.

This new method of interfacing magnetrostrictive transducers offers an interface as common as analog but with the speed and accuracy of pulsed type signaling. The Gemco 955DQ linear transducer provides quadrature output directly from the transducer to the controller. The output from the transducer can be wired directly to any incremental encoder input card, without the need for a special converter module or a PLC interface card designed specifically for use with a pulsed output magnetostrictive transducer.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The BRIK with quadrature output is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than one inch deep. The magnet slide is designed to move effortlessly along the transducer in a guide track or a floating magnet assembly can be positioned above the unit.

The 955DQ BRIK has a few truly unique features. First, the LDT has auto-tuning capability. This is the abiliy to sense a magnet other than the standard slide magnet and adjust its signal strength accordingly. Another feature is a diagnostic LED located at the connector end of the probe that remains green when a good magnet signal is present and power is normal. The LED turns red when there is no magnet present or the magnet assembly is out of the sensing area.

The 955DQ LDT can be ordered with 1-9999 cycles per inch of output resolution in lengths of 5 to 180 inches. The transducer features an input to re-zero the probe “on-the-fly”. Another unique feature is the “burst” mode. An input on the transducer triggers a data transfer of all the incremental position data relative to the customers set zero position. This can be used to achieve absolute position updates when power is restored to the system, eliminating the the time consuming need to “re-home” the machine.

Specifications	
Input Voltage	13.5 to 30 VDC
Current Draw	2.5 Watts Maximum, 120 mA @ 15 VDC Typical
Output	Quadrature Output A+, A-, B+, B-, Z+, Z- Line Drivers: 5V or Input Power
Resolution	0.001”
Non-Linearity	+/- 0.05% of Stroke
Repeatbility	+/- 0.006% of Full Stroke
Hysteresis	+/- 0.02% of Full Scale
Update **50” or less** **51” to 100”** **101” to 150”** **151” to 180”**	 1mS (Stroke Lengths 5” - 50”) 2mS (Stroke Lengths 51” - 100”) 3mS (Stroke Lengths 101” - 150”) 4mS (Stroke Lengths 151” - 180”)
Operating Temperature	-20° to 70° C
Span Length	5” to 180”
Null Zone	3.00”
Dead Zone	2.00”
LED	Green = Power is applied and magnet is present Red = Fault, magnet is in the Dead Zone or lost
Connector	Standard 12 Pin Micro (Option E) 12mm Euro Connector or 10 Pin HRS (Option H)
Approvals	CE
Enclosure	IP67, IP68 Optional (Connector Option E Only)
Specifications are subject to change without notice. Specifications are based on a typical 36” LDT.	

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Part Numbering

955DQ — 0120 — E — 1000 — E — F7 — X1 — N — D — X

955DQ BRIK Gen III Quadrature Output

Stroke In Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number.
Example: 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Connector Style
H = HRS Environmental Connector.
E = Euro 12 Pin, 12mm Connector. Consult factory for others.

Output Resolution
Cycles per inch, maximum internal resolution is .001 inches. 1000 standard (Available range is 0001 through 9999). Consult factory for for ranges above 9999.

Input Type
E = Sinking (Typically used with sourcing output type)
C = Sourcing (Typically used with sinking output type)
T = TTL Level

Quadrature Cycle Output Frequency Range

F1 = 10 KHz	F4 = 75 KHz	F7 = 250 KHz
F2 = 25 KHz	F5 = 100 KHz	F8 = 500 KHz
F3 = 50 KHz	F6 = 150 KHz	F9 = 1.0 MHz

Output Mode
X1 = X1 Quadrature
D1 = Dual Magnet, Difference between magnets.

Zero Offset Storage
V = Volatile (nonretentive).
N = Nonvolatile (retentive, 100,000 storage cycles maximum).

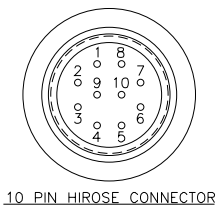
Output Drivers
D = Differential RS422 line driver, TTL compatible.
L = Differential line driver 10-30 VDC, V out = V in (LDT Power) - 1 Volt.

Options
X = None.
E = Wet environment. Electronics sealed to IP 68 Rating. Connector Option E only.

Accessories

Item	Part Number
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
6 Ft. Cable (Option H)	SD0527700L6
12 Ft. Cable (Option H)	SD0527700L12
25 Ft. Cable (Option H)	SD0527700L25
6 Ft. 12 Pin (Option E Connector)	949023L6
12 Ft. 12 Pin (Option E Connector)	949023L12
Control Arm	955ARMXX (X = Length in Inches)
Rod End	04-570252
For non-standard lengths, consult factory.	

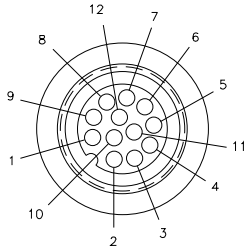
Wiring Diagram (Connector Option H)



10 PIN HIROSE CONNECTOR
Connector View

WIRE COLOR	10 PIN CONN. DESIG.
BLACK	1
RED	2
GREEN	3
BROWN	4
BLUE	5
ORANGE	6
YELLOW	7
WHITE	8
VIOLET	9
GRAY	10

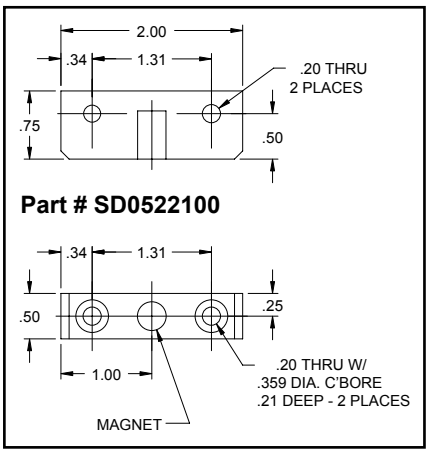
Wiring Diagram (Connector Option E)

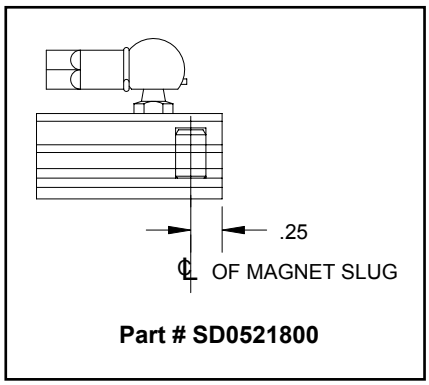


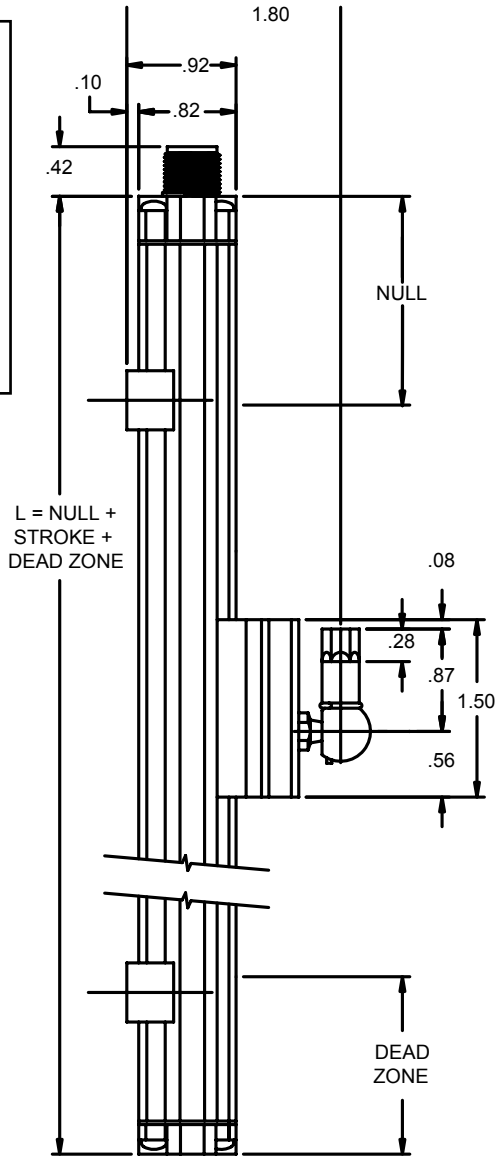
12 PIN CONNECTOR
Connector View

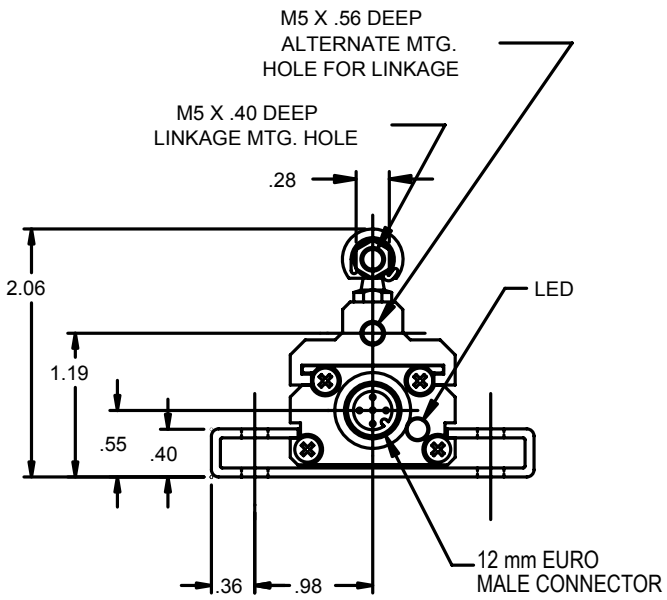
WIRE COLOR	12 PIN EURO CONN. DESIG.	PIN OUT
WHITE	1	B+
BROWN	2	PWR+
GREEN	3	Z+
YELLOW	4	Z–
GRAY	5	A+
PINK	6	A–
BLUE	7	GND
RED	8	BURST
ORANGE	9	ZERO
TAN	10	B–
NC	11	–
NC	12	–

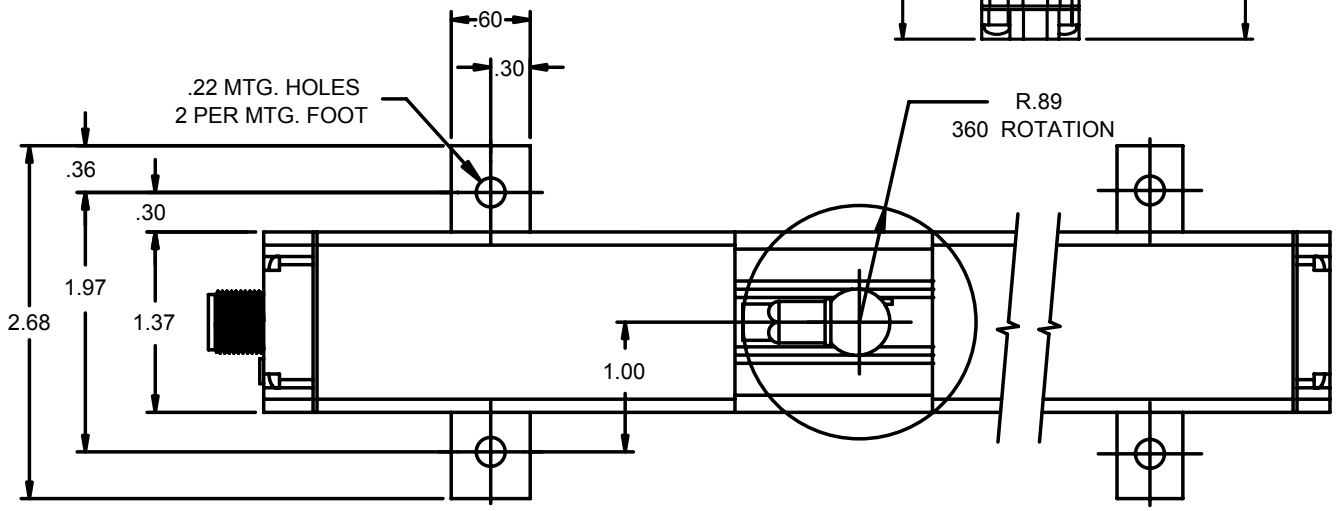
Dimension Drawing











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956LC BLOK

Gemco 956LC BLOK

The 956LC BLOK is an accurate, non-contact, linear position sensor in an economical package. The sensor utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .01% of the sensing distance. The 956LC BLOK is a cost effective linear sensing solution.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The piston assembly moves over the sensing element that determines the position and converts it to a readable output.

The 956LC BLOK is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than 1.5 inches square. Units can be ordered in span lengths up to 36 inches long in 0.1 inch increments. The piston is designed to move effortlessly along the transducer. A variety of hardware is available for attaching the LDT to the moving portion of the process.

The transducer can be mounted vertically or horizontally using mounting feet or optional rod ends. The mounting feet slide on the extrusion and clamp down when tightened. This package style provides a compact and easy method of mounting for machine builders.

The transducer can be ordered with 0-10 VDC or 4-20 mA output. All units are provided with a standard quick disconnect conector.

The 956LC BLOK is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit and proximity sensors and linear potentiometers. Applications include presses, blow molding, injection molding, extrusion, roll positioning, wicket gates and many more.

Specifications	
Input Voltage	24 VDC +/- 20%
Current Draw	100 mA Max.
Output	0 to 10 VDC 10 to 0 VDC 4 to 20 mA 20 to 4 mA
Linearity	+/- 0.05% of stroke or +/- 0.028", whichever is greater
Accuracy	0.1% of full stroke
Repeatability	+/- 0.01% of full stroke or +/- 0.014", whichever is greater
Operating Temperature	-20° to 70° C
Span Length	6" to 36" Consult factory for vertical applications over 36" long
Null Zone	3.00"
Dead Zone	1.50"
Connector	Standard 4 pin micro 12mm Euro connector
Agency Approvals	CE Approved
Enclosure	IP67
Specifcation may change without notice.	

Part Numbering

956LC — V0 — 0120

956LC BLOK

Output Type

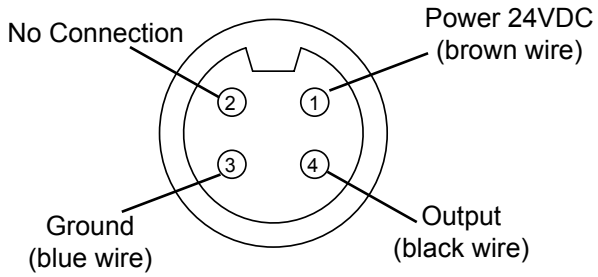
V0 = 0 - 10 VDC
V1 = 10 - 0 VDC
C4 = 4 to 20 mA
C2 = 20 to 4 mA

Stroke in Inches

Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke to inches, multiply millimeter value by 0.03937.

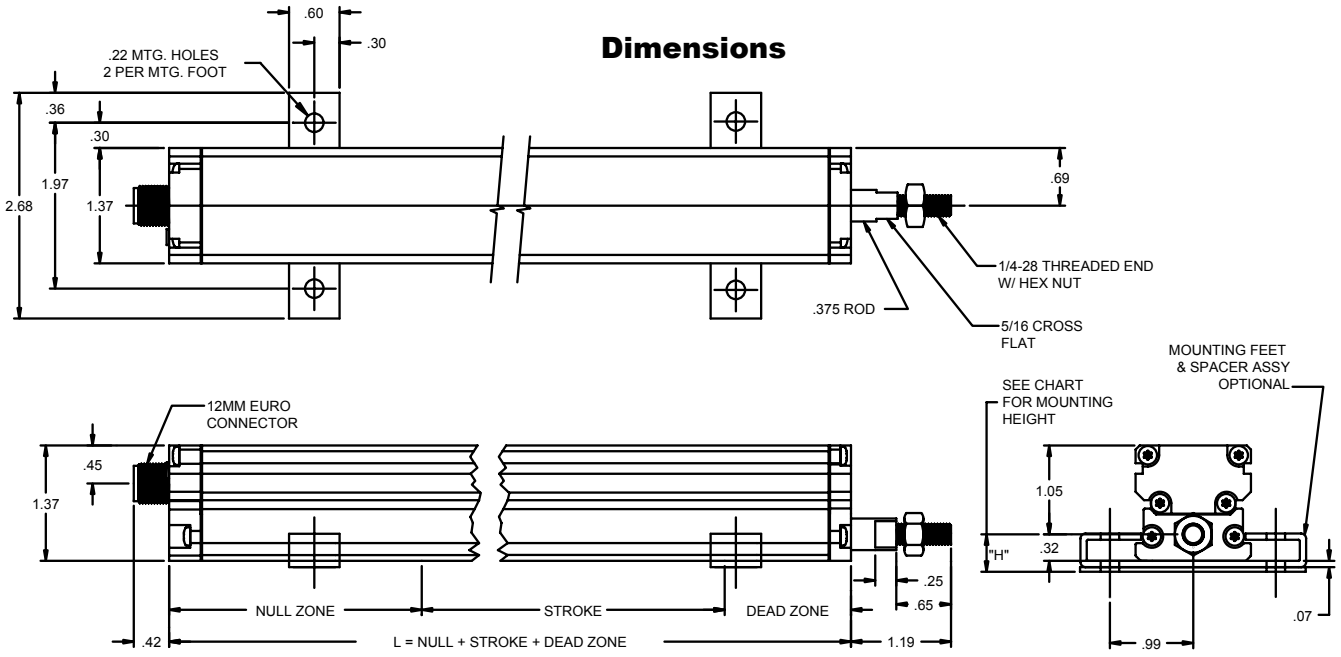
Accessories	
Item	**Part Number**
Rod End (Shaft)	04-570256
Mounting Foot	SD0522000
Spacer Kit Mount feet for .45" or .75" mounting Includes two mounting feet & spacers	SD0545100
6 Ft. Cable	949001L6
12 Ft. Cable	949001L12
6 Ft. Cable; Right Angle Connector	949002L6
12 Ft. Cable; Right Angle Connector	949002L12

Wiring Diagram



Euro Connector
(micro 12 mm single keyway)

Dimensions



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Magnetostrictive LDT

In A Piston Style Package

The 956S BLOK is an accurate, programmable zero and span, non-contact linear position sensor in an economical package. The sensor utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .01% of the sensing distance. The 956S BLOK is a cost effective linear sensing solution.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The piston assembly moves over the sensing element that determines the position and converts it to a readable output. The 956S BLOK is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than 1.5 inches square. Units can be ordered in span lengths up to 36 inches long in 0.1 inch increments. The piston is designed to move effortlessly along the transducer. A variety of hardware is available for attaching the LDT to the moving portion of the process.

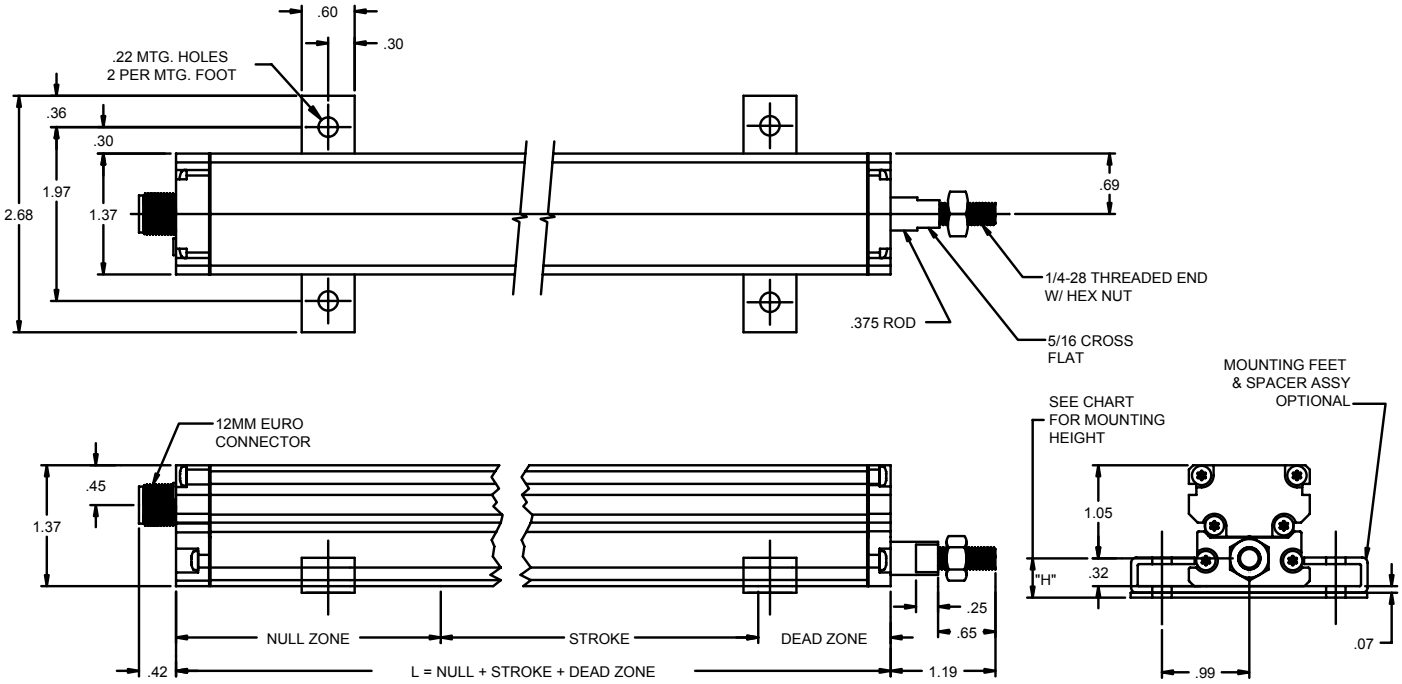
The transducer can be mounted vertically or horizontally using our mounting feet or optional rod ends. The mounting feet slide on the extrusion and clamp down when tightened. This package style provides a compact and easy method of mounting for machine builders.

The transducer can be ordered with 0-10 VDC, 0-5 VDC, 4-20 mA, -10 to 10 VDC or -5 to 5 VDC. All units are provided with a standard quick disconnect connector. A unique feature is the diagnostic LED that remains green when the unit is operational and in the active programmed area. The LED turns red if there is an internal sensor failure. The LED turns yellow when the magnet is out of the programmed active range.

The 956S BLOK is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit and proximity sensors and linear potentiometers. Applications include presses, blow molding, injection molding, extrusion, roll positioning, wicket gates and many more.

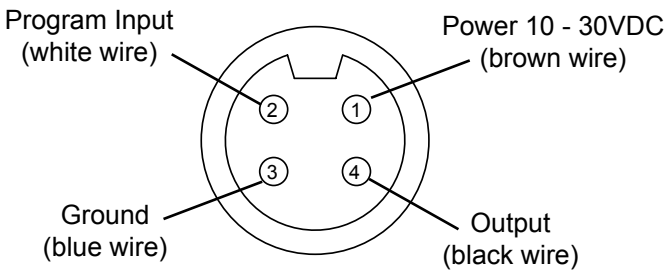
Specifications	
Input Voltage	10 - 30 VDC
Current Draw	100 mA Max.
Output	V0 = 0 - 10 VDC V1 = 10 - 0 VDC V2 = -10 to 10 VDC V3 = 10 to -10 VDC V4 = 0 to 5 VDC V5 = 5 to 0 VDC V6 = -5 to 5 VDC V7 = 5 to -5 VDC C4 = 4 to 20 mA C2 = 20 to 4 mA
Linearity	+/- 0.05% of Full Stroke
Accuracy	+/- 0.1% of Full Stroke
Repeatability	+/- 0.01% of Full Stroke
Operating Temperature	-40° to 158° F (-40° to 70° C)
Span Length	4" - 36" Consult factory for vertical applications over 36" long
Null Zone	3"
Dead Zone	1.5"
Connectors	12mm Micro 4 Pin
Enclosure	IP67
Approvals	CE
Specifications are subject to change without notice.	

Dimension Drawing



Wiring Diagram

Use Euro Connector (micro 12 mm single keyway) cordsets, available from most connector manufacturers or purchased from Ametek. Install according to the following diagram:



LDT Connector View

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Part Numbering

956S — V0 — 0120 — X

956S Smart BLOK

Output Type
V0 = 0 - 10 VDC
V1 = 10 - 0 VDC
V2 = -10 to 10 VDC
V3 = 10 to -10 VDC
V4 = 0 to 5 VDC
V5 = 5 to 0 VDC
V6 = -5 to 5 VDC
V7 = 5 to -5 VDC
C4 = 4 to 20 mA
C2 = 20 to 4 mA

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Options
X = No options
E = Wet environment. Electronics sealed to IP68 Rating.

Accessories	
Item	**Part Number**
Spacer Kit Mount feet for .45" or .75" mounting Includes two mounting feet & spacers	SD0545100
Rod End (Shaft)	04-570256
Mounting Foot	SD0522000
6 Ft. Cable	949001L6
12 Ft. Cable	949001L12
6 Ft. Cable; Right Angle Connector	949002L6
12 Ft. Cable; Right Angle Connector	949002L12

956A BLOK Gen III

Magnetostrictive LDT
In A Piston Style Package

The 956A BLOK is an accurate, programmable zero and span, non-contact linear position sensor in an economical package. The sensor utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .006% of the sensing distance. The 956A BLOK is a cost effective linear sensing solution.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The piston assembly moves over the sensing element that determines the position and converts it to a readable output. The 956A BLOK is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than 1.5 inches square. Units can be ordered in span lengths up to 36 inches long in 0.1 inch increments. The piston is designed to move effortlessly along the transducer. A variety of hardware is available for attaching the LDT to the moving portion of the process.

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

The transducer can be ordered with 0-10 VDC or 4-20 mA output. All units are provided with a standard quick disconnect connector. A unique feature is the diagnostic LED that remains green when the unit is operational and in the active programmed area. The LED turns red if there is an internal sensor failure. The LED turns yellow when the magnet is out of the programmed active range.

The 956A BLOK is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit and proximity sensors and linear potentiometers. Applications include presses, blow molding, injection molding, extrusion, roll positioning, wicket gates and many more.

Specifications	
Input Voltage	13.5 to 30 VDC
Current Draw	2.5 Watts Maximum, 120 mA @ 15 VDC Typical
Output	0 to 10 VDC, 10 to 0 VDC, 4 to 20 mA, 20 to 4 mA
Resolution **1) Internal** **2) Analog Output**	 0.001" 16 Bit (1 part in 65,535)
Non-Linearity	+/- 0.05% of Stroke
Repeatbility	+/- 0.006% of Full Stroke
Hysteresis	+/- 0.02% of Full Scale
Update **36" or less**	 1mS (Stroke Lengths 5 - 36")
Operating Temperature	-20° to 70° C
Span Length	5" to 36" Consult factory for vertical applications over 36" long
Null Zone	3.00"
Dead Zone	2.00"
LED	Green = Power is applied and magnet is present Red = Fault, magnet is in the Dead Zone or lost Yellow = Out of the active programmed range
Connector	Standard 5 Pin Micro 12mm Euro Connector
Approvals	CE
Enclosure	IP67
Specifications are subject to change without notice. Specifications are based on a typical 36" LDT.	

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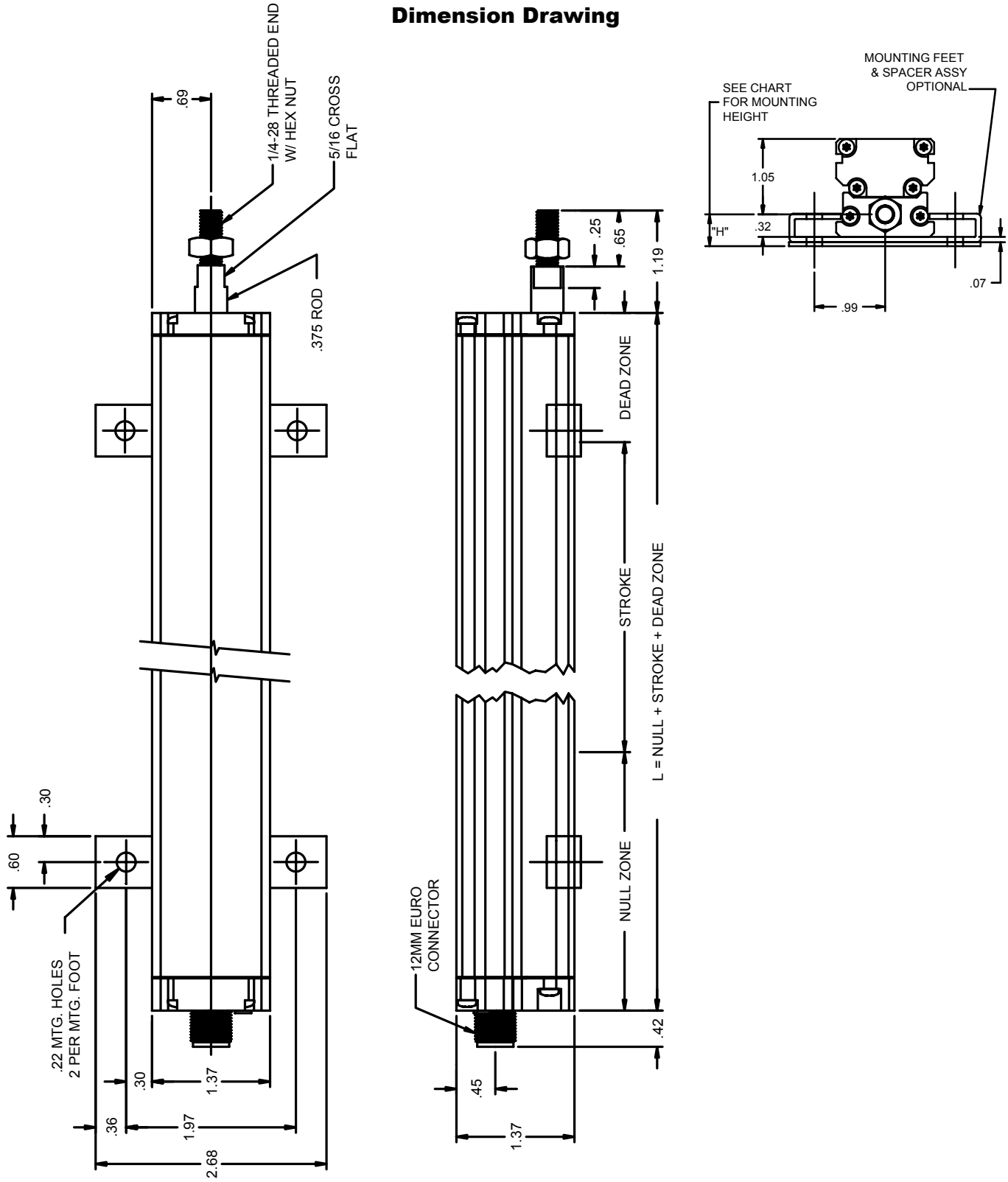
Dimension Drawing



Part Numbering

956A — V0 — 0120 — X

956A Analog BLOK Gen III

Output Type

V0 = 0 - 10 VDC
V1 = 10 - 0 VDC
C4 = 4 to 20 mA
C2 = 20 to 4 mA

Stroke in Inches

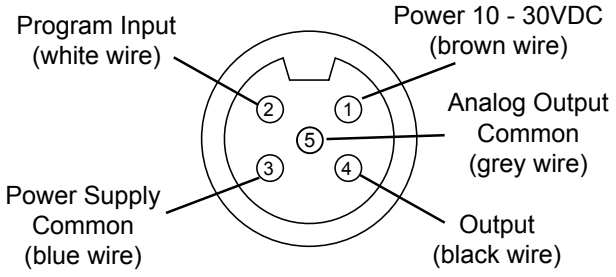
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Options

X = No options
E = Wet environment. Electronics sealed to IP68 Rating.

Wiring Diagram

Use Euro Connector (micro 12 mm single keyway) cordsets, available from most connector manufacturers or purchased from Ametek. Install according to the following diagram:



Connector View

Accessories	
Item	**Part Number**
Spacer Kit Mount feet for .45" or .75" mounting Includes two mounting feet & spacers	SD0545100
Rod End (Shaft)	04-570256
Mounting Foot	SD0522000
6 Ft. Cable	949019L6
12 Ft. Cable	949019L12
6 Ft. Cable; Right Angle Connector	949020L6
12 Ft. Cable; Right Angle Connector	949020L12

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956D BLOK Gen III

Magnetostrictive LDT
In A Piston Style Package

The 956D BLOK is an accurate, digital, non-contact linear position sensor in an economical package. The sensor utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .006% of the sensing distance. The 956D BLOK is a cost effective linear sensing solution.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The piston assembly moves over the sensing element that determines the position and converts it to a readable output. The 956D BLOK is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than 1.5 inches square. Units can be ordered in span lengths up to 36 inches long in 0.1 inch increments. The piston is designed to move effortlessly along the transducer. A variety of hardware is available for attaching the LDT to the moving portion of the process.

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

The 956D BLOK is available with Control Pulse, Variable Pulse or RS422 Start/Stop versions. The 956D is compatible with PLC interface cards or our series 1746 LDT or 2120L1 modules. All units are provided with a standard quick disconnect connector. A unique feature is the diagnostic LED that remains green when the unit is operational and in the active programmed area. The LED turns red if there is an internal sensor failure. The LED turns yellow when an external interrogation is not detected.

The 956D BLOK is designed for applications where economical continuous feedback is necessary. The sensor can be a cost effective replacement to limit and proximity sensors and linear potentiometers. Applications include presses, blow molding, injection molding, extrusion, roll positioning, wicket gates and many more.

Specifications	
Input Voltage	13.5 to 30 VDC
Current Draw	2.5 Watts Maximum, 120 mA @ 15 VDC Typical
Output	Control Pulse, Variable Pulse, Start/Stop
Resolution	Controller Dependent
Non-Linearity	+/- 0.05% of Stroke
Repeatbility	+/- 0.006% of Full Stroke
Hysteresis	+/- 0.02% of Full Scale
Update	Controller Dependent
Operating Temperature	-20° to 70° C
Span Length	5" to 36" Consult factory for vertical applications over 36" long
Null Zone	3.00"
Dead Zone	2.00"
LED	Green = Power is applied and magnet is present Red = Fault, magnet is in the Dead Zone or lost Yellow = No Interrogation Pulse
Connector	Standard 6 Pin Micro 12mm Euro Connector
Approvals	CE
Enclosure	IP67
Specifications are subject to change without notice. Specifications are based on a typical 36" LDT.	

Part Numbering

956D — CP — 0120 — X

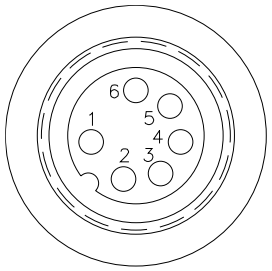
Series 956D
The BLOK Gen III
Control Pulse & RS422
Start/Stop

Output Type
CP = Control Pulse
RS = RS422 Start/Stop Pulse

Stroke in Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Options
X = No options
E = Wet environment. Electronics sealed to IP68 Rating.

Wiring Diagram



6 PIN CONNECTOR

WIRE COLOR	6 PIN EURO CONN. DESIG.	PIN OUT
BROWN	1	PWR+
WHITE	2	OUT+
BLUE	3	GND
BLACK	4	OUT–
GRAY	5	INT–
PINK	6	INT+

Connector View

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Part Numbering

956D — VP — 0120 — I — 001 — X

956D
Variable Pulse
956D BLOK Gen III

VP
Output
VP = Variable Pulse

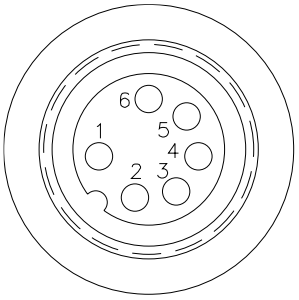
0120
Stroke In Inches
Insert stroke in inches to 0.1 inch. Enter as a four-place number. **Example:** 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

I
Interrogation Mode
I = Internal Interrogation
E = External Interrogation

001
Number of Recirculations
001 (standard) to 127

X
Options
X = No options
E = Wet environment. Electronics sealed to IP68 Rating.

Wiring Diagram



6 PIN CONNECTOR

Connector View

WIRE COLOR	6 PIN EURO CONN. DESIG.	PIN OUT
BROWN	1	PWR+
WHITE	2	OUT+
BLUE	3	GND
BLACK	4	OUT–
GRAY	5	INT–
PINK	6	INT+

956DQ BLOK Gen III

Magnetostrictive LDT In A Piston Style Package with Quadratue Output

The 956DQ BLOK is an accurate, quadrature, non-contact linear position sensor in an economical package. The sensor utilizes our field proven magnetostrictive technology to give absolute position, repeatable to .006% of the sensing distance. The 956DQ BLOK is a cost effective linear sensing solution.

The streamlined anodized aluminum extrusion houses the sensing element and electronics. The piston assembly moves over the sensing element that determines the position and converts it to a quadrature output. The 956DQ BLOK is a self-contained unit and does not have a can or head assembly. All of the electronics are incorporated in the transducer which is less than 1.5 inches square. Units can be ordered in span lengths up to 36 inches long in 0.1 inch increments. The piston is designed to move effortlessly along the transducer. A variety of hardware is available for attaching the LDT to the moving portion of the process.

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

The 956DQ LDT can be ordered with 1-9999 cycles per inch of output resolution in lengths of 5 to 36 inches. The transducer features an input to re-zero the probe “on-the-fly”. Another unique feature is the “burst” mode. An input on the transducer triggers a data transfer of all the incremental position data relative to the customers set zero position. This can be used to achieve absolute position updates when power is restored to the system, eliminating the the time consuming need to “re-home” the machine.

Specifications	
Input Voltage	13.5 to 30 VDC
Current Draw	2.5 Watts Maximum, 120 mA @ 15 VDC Typical
Output	Quadrature Output A+, A-, B+, B-, Z+, Z- Line Drivers: 5V or Input Power
Resolution	0.001”
Non-Linearity	+/- 0.05% of Stroke
Repeatbility	+/- 0.006% of Full Stroke
Hysteresis	+/- 0.02% of Full Scale
Update	1mS (Stroke Length 5-36”)
Operating Temperature	-20° to 70° C
Span Length	5” to 36” Consult factory for vertical applications over 36” long
Null Zone	3.00”
Dead Zone	2.00”
LED	Green = Power is applied and magnet is present Red = Fault, magnet is in the Dead Zone or lost
Connector	Standard 12 Pin Micro (Option E) 12mm Euro Connector or 10 Pin HRS (Option H)
Approvals	CE
Enclosure	IP67
Specifications are subject to change without notice. Specifications are based on a typical 36” LDT.	

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Part Numbering

956DQ — 0120 — E — 1000 – E — F7 — X1 — N — D — X

956DQ BRIK Gen III Quadrature Output

Stroke In Inches

Insert stroke in inches to 0.1 inch. Enter as a four-place number.
Example: 12.0 in stroke entered as 0120. To convert a metric stroke in millimeters, multiply millimeter value by 0.03937 to arrive at inch value.

Connector Style

H = HRS Environmental Connector.
E = Euro 12 Pin, 12mm Connector. Consult factory for others.

Output Resolution

Cycles per inch, maximum internal resolution is .001 inches. 1000 standard (Available range is 0001 through 9999). Consult factory for for ranges above 9999.

Input Type

E = Sinking (Typically used with sourcing output type)
C = Sourcing (Typically used with sinking output type)
T = TTL Level

Quadrature Cycle Output Frequency Range

F1 = 10 KHz F4 = 75 KHz F7 = 250 KHz
F2 = 25 KHz F5 = 100 KHz F8 = 500 KHz
F3 = 50 KHz F6 = 150 KHz F9 = 1.0 MHz

Output Mode

X1 = X1 Quadrature
D1 = Dual Magnet, Difference between magnets.

Zero Offset Storage

V = Volatile (nonretentive).
N = Nonvolatile (retentive, 100,000 storage cycles maximum).

Output Drivers

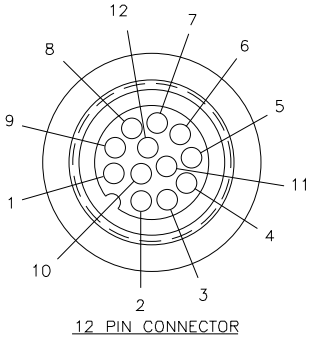
D = Differential RS422 line driver, TTL compatible.
L = Differential line driver 10-30 VDC, V out = V in (LDT Power) - 1 Volt.

Options

X = None.
E = Wet environment. Electronics sealed to IP 68 Rating. Connector Option E only.

Accessories	
Item	**Part Number**
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
6 Ft. Cable (Option H)	SD0527700L6
12 Ft. Cable (Option H)	SD0527700L12
25 Ft. Cable (Option H)	SD0527700L25
6 Ft. 12 Pin (Option E Connector)	949023L6
12 Ft. 12 Pin (Option E Connector)	949023L12
Control Arm	955ARMXX (X = Length in Inches)
Rod End	04-570252
For non-standard lengths, consult factory.	

Wiring Diagram (Connector Option E)



12 PIN CONNECTOR
Connector View

WIRE COLOR	12 PIN EURO CONN. DESIG.	PIN OUT
WHITE	1	B+
BROWN	2	PWR+
GREEN	3	Z+
YELLOW	4	Z–
GRAY	5	A+
PINK	6	A–
BLUE	7	GND
RED	8	BURST
ORANGE	9	ZERO
TAN	10	B–
NC	11	–
NC	12	–

7330 Pro-Stik II

Intrinsically Safe
Programmable Linear Position Sensor

The Series 7330 Pro-Stik II sensor combines the reliability and resolution of magnetostrictive continuous absolute positioning sensing with the Stik sensor package to create a unique level measuring instrument.

The magnetostrictive technology is the same as used in Gemco LDT sensors. Ametek liquid level sensors, have been proven in demanding applications such as underground leak detection and inventory management. The 7330 is available with a rigid 316 stainless steel or flexible PVDF materials.

All of the electronics are SMT components integrated into the 5/8" diameter sensing tube. This breakthrough in package design eliminates the electronics enclosure at the top of the sensor, which reduces the cost and offers greater options for insertion and mounting in tanks and vessels.

Continuous position data is provided with resolution of .014". The two wire loop powered 4 - 20mA intrinsically safe output is field programmable for zero and span via a separate programming pin. The position data is absolute and can be referenced from the top or bottom of the probe.

The rugged, all welded 316 stainless steel construction is ideal for industrial, food processing, pharmaceutical, sanitary environments and even hazardous areas requiring intrinsically safe protection.

The sanitary and food grade versions of the Stik are totally welded, ground and polished, and can be easily installed with the Tri-clamp fitting. The Series 7330S probe design eliminates unacceptable cracks and crevices and is available in a 3-A CIP version or food grade finish with a removable float. A variety of floats, magnets, and mounting options are available to fit virtually any application.

Specifications	
Operating Voltage	13.5 - 30 VDC
Loop Impedance (R)	0 - 1000 @ 24 volts
Output	4 - 20 mA
Operating Temperature	-20° to 70° C
Pressure Rating	1000 psi Max.
Resolution	0.025% full scale or 0.02" (whichever is greater)
Repeatablity	0.025% full scale or +/-0.020" (whichever is greater)
Accuracy	0.1% or .050" (whichever is greater)
Enclosure: **Material** **Rating**	 Probe: 316 SS or PVDF IP68
Probe Length **Stainless Steel**	 20" - 288"
Null Zone	8"
Deadband	2"
Intrisically Safe Barrier	Voc less than or equal to 31 VDC Isc less than or equal to 165 mA
Approvals	Class I, II, III Div. 1, Grp C, D, E, F, & G Class I, Zone 0, Grp IIB Class I Div. 2, Grp A, B, C, D EEx ia IIB T4 FM, CSA, ATEX (pending) 3A (74-02)
Specifications may change without notice. Patented.	

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Part Numbering

733 — X — X — M — E — 072 — F1 — XXX — X — XX

733 — **Pro-Stik II**

Output
0 = 4-20 mA
1 = 20-4 mA

Style
X = 316 Stainless Steel
V = PVDF
S = Sanitary
F = Food Grade

Connector Style
M = Mini
R = 1/2" NPT Right Angle
D = 3/4" NPT Dual
S = 3/4" NPT Single
B = Fixed Bottom

Fittings
E = English
M = Metric

Stroke in Inches
Example: Insert stroke in inches ie. 072 = 72"

Magnetic Signal Capabilities
F1 = 1 Magnet

Overall Length

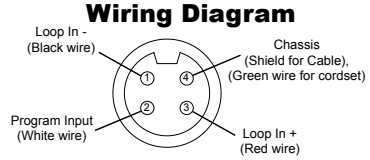
Mounting

X = None C = "C" Version T = Tri-Clamp	B = Fixed Bottom P = C.I.P. (3A)

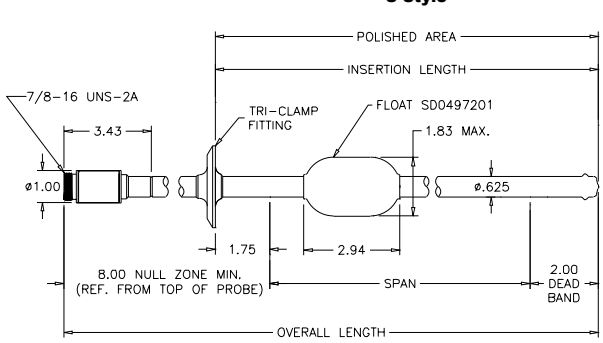
Special Mounting

XX = None	
For "B" Mounting Style Gx = Galvanized Hsg Sx = Stainless Hsg x0 = Std	For "T" Mounting Style 20 = 2" 25 = 2.5" 30 = 3" 40 = 4"

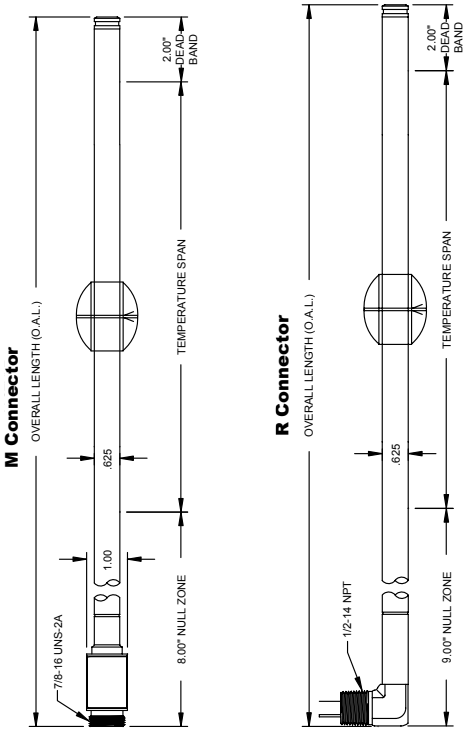
Wiring Diagram



S Style



Dimension Drawing



7330

Series 950MD Gemco Mill-Duty Housing

Series 950MD Mill-Duty Housing
The Series 950MD is designed for applications where mounting a stand-alone magnetostrictive linear displacement transducer is prohibitive due to potential physical damage, environmental considerations or mounting limitations. The Mill-Duty Housing is designed to eliminate all of the above problems by protecting an LDT from physical and environmental damage, such as temperature or corrosives, and offers a simple two-point mounting scheme that can compensate for lateral and horizontal play in the machine while in operation. The Series 950MD was originally designed for use in steel mill applications, but has proven reliable in many applications where ruggedness, environmental protection and ease of mounting are required. These applications include:

Steel Mills - Tundish car (Tundish height), turret height (caster), hydraulic coil cars, torch cutoff machine (torch head monitoring), furnace tilt (electric arc furnace), side guide positioning, ladle slide gate positioning, louver position, etc.

Injection Molding - Proven effective in monitoring/controlling the position of the clamp and/or shot cylinder. The two-point connection allows for simple retrofit.

Hydraulic Servo Applications - Ideal for paralleling hydraulic cylinders, including new applications and retrofits. The major advantage in using mill duty housings versus cylinder mounted LDTs is that the cylinder fluid flow is not compromised. If an LDT fails within a cylinder, it cannot be repaired/replaced without having to drain the fluid from the cylinder. Also, some cylinders may be difficult to remove once installed, thus inhibiting the removal of the LDT. The Mill-Duty Housing can be removed without affecting the cylinder.

The Series 950MD consists of an all stainless steel body. The head assembly is removable to allow a magnetostrictive linear displacement transducer to screw in. The head also contains a 1/2” conduit port for customer wiring to the LDT and two air purge ports for air cooling (if necessary).

The actuator contains a 1/2” spherical rod end with approximately 1” of adjustment (length). This spherical rod end allows mechanical movement in a horizontal and/or vertical motion to compensate for any mechanical slop or misalignment between the housing and machine.

A rear trunnion mount is provided for mounting either directly in front of the head assembly or on the rear of the head. An optional 3/4” spherical rod end can be supplied on the rear of the unit (see drawing for details).

The actuator rod is supported by two bearings within the guide tube. The front piston bearing contains a wiper assembly to keep contaminants from entering the guide tube. The rear, or movable, bearing assembly is manufactured from Rulon. This high-temperature polymer material provides low wear and smooth operation.

The transducer magnet is mounted within the rear bearing assembly. The magnet is a 1” O.D. style. The magnet is positioned 2” from the end of the transducer hex when the actuator is fully retracted and 5” from the end of the transducer guide tube when the actuator is fully extended.

The Series 950MD is designed to incorporate an LDT which has a minimum 2” null zone and 5” dead zone. The Series 951 LDT has a minimum 1.5” null zone and 2.25” dead zone standard. When specifying a Series 951 LDT

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to be used in a Mill-Duty Housing, you must specify a 2" null zone and 5" dead zone minimum to ensure mechanical and electrical compatibility.

Due to the fact that the standard Mill-Duty Housing has a mechanical stroke identical to the LDT active stroke, no physical overstroke exists. If it is possible that the machine being coupled to can extend/retract beyond the stroke supplied, damage to the Mill-Duty Housing and possibly to the machine might occur. To compensate for this we call out fully retracted/fully extended overstroke dimensions for the Mill-Duty Housing. These values are essentially the additional stroke length added to the Mill-Duty Housing. The reason they are called out separately is to alert the user that when entering these areas, they are out of the LDTs active stroke area. If an extended overstroke is specified, the LDT must be ordered with a dead band of 5" + X (extended stroke value). If a retracted overstroke is specified, the LDT must be specified with a null value of 2" + Y (retract overstroke value).

The Mill-Duty Housing offers either a conduit entrance only for hard wiring directly to the LDT within the head or an external MS style connector and mate. The connector attaches to the LDT via a small pigtail connector within the head.

Optional Items - The standard Mill-Duty Housing includes the complete housing assembly with provisions to accept an LDT and all bolts, nuts and mounting hardware required for a complete installation. There are also several optional items available.

Vortex Air Cooler - The standard Series 950MD is equipped with air purge ports. In many cases, running clean shop air through the head is sufficient to cool the electronics. For severe temperature applications a Vortex Air Cooler may be desired. A Vortex Air Cooler accepts standard shop air (80 - 100 PSIG). The air is ejected through a generator in a Vortex spin chamber where the air stream revolves in a tube at up to 1,000,000 RPM. In simplest terms the inner stream gives off energy in the form of heat to the outer stream and the inner stream exits the opposite end as hot air. The Vortex cooler is capable of generating air flows as cold as -40°F.

Protective Boots - To give added protection to the actuator rod, protective boots are available. These boots attach between the end of the mill duty guide tube and the end of the actuator rod assembly. The boots are offered in neoprene-coated nylon for most standard applications. They offer -60°F to 250°F operating range with resistance to water and oil. Also, silicone coated fiber glass offers high temperature resistance from -100°F to 550°F; Teflon-coated fiber glass offers -100°F to 500°F operating range with a high degree of corrosion resistance.

Water-Cooled Head Assemblies - In applications where extreme temperatures are present and air cooling is not appropriate, water-cooled head assemblies are available. Cooling jackets within the head assembly allow water to flow around the electronics.

Rear Mount Spherical Rod Ends - In applications where two spherical rod ends are required, rear mount spherical rod ends are available. The 3/4" rear rod end attaches to a threaded bolt extending from the rear of the head.

950MD
Mill-Duty Housing

Part Numbering

950MD — 12A — 0B — 0C — X — X

Mill-Duty Housing

Active Stroke in Inches
Determine the "active" stroke to be measured followed by "A".

Fully Retracted Overstroke in Inches
Insert length of retract overstroke in inches followed by "B". If no retract overstroke is required, simply insert "0B".

Fully Extended Overstroke in Inches
Insert length of extend overstroke in inches followed by "C". If no extend overstroke is required insert "0C".

Connector Style
X = Standard 1/2 inch NPT Conduit Fitting (It is suggested to order a quick disconnect connector on the LDT)
C2 = Environmental MS Connector and Mate on Side of Housing (specify the Gemco LDT to be used within the body of the order. If the housing is being used with a competitive probe, please contact a Customer Service Representative).

Options
X = None
V = Vortex Air Cooler
B1 = Protective Boot - Neoprene Coated Nylon (-60F to +250F)
B2 = Protective Boot - Silicone Coated Fiber Glass (-100F to +550F)
B3 = Protective Boot - Teflon Coated Fiber Glass (-100F to +500F)
R = Rear Mount Spherical Rod End 3/4"
F = Front Mount Spherical Rod End 3/4"

Note 1: Guide tube support brackets are supplied as standard for strokes of 72" or greater. **Note 2:** Special high temperature, abrasion resistant and oil resistant cables are available. Consult your Customer Service Representative.

Accessories	
Item	**Part Number**
Vortex Cooler	04578009
Muffler for Cooler	04578010
Replacement 1/2" Spherical Rod End	04570140
Guide Tube Support Bracket (See note 1)	C0903400
Replacement (Male Connector) for Option "C2" Connector	04521407
Female Mating Connector for Option "C2" Connector	04521372

950MD Compatibility Guide	
940	Yes
950IS	Consult Factory
951	Yes (Must be ordered w/2" null & 5" dead zone)
952	Yes (Must be ordered w/2" null & 5" dead zone)
955	See 956 Section
7330	Consult Factory

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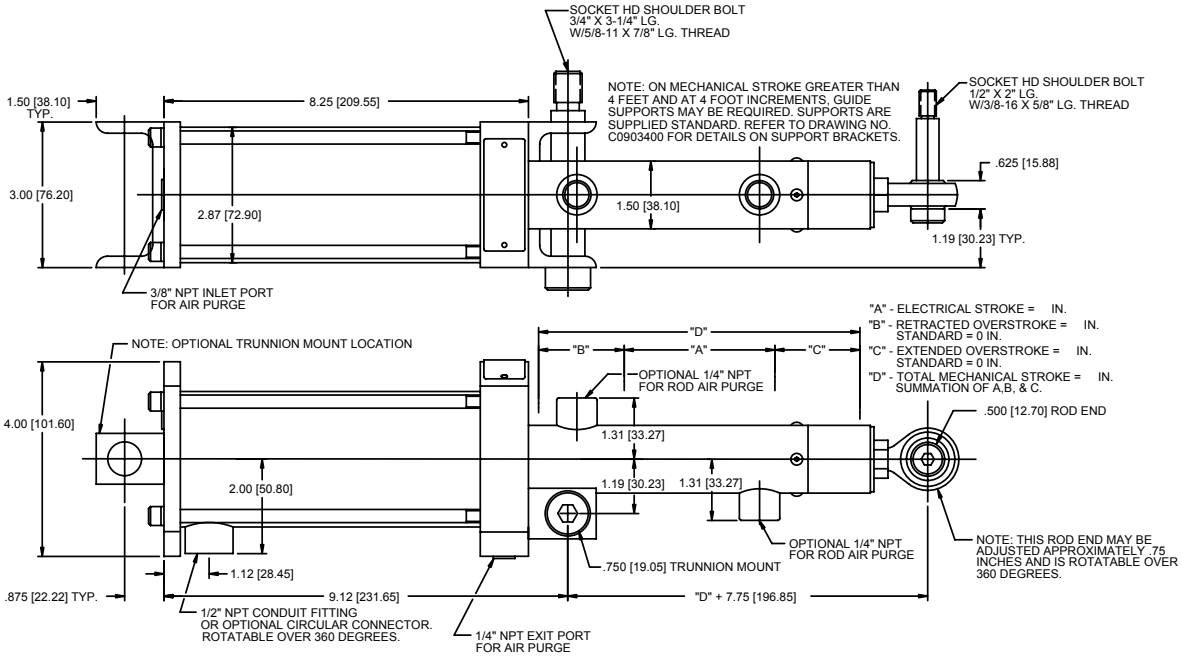
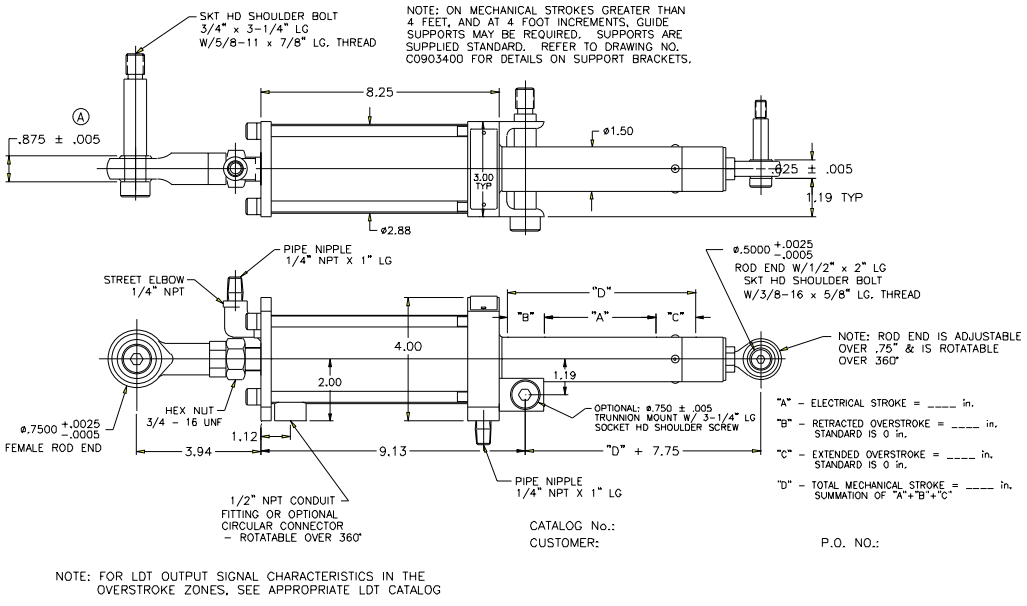
Standard 950MD



NOTES: UNLESS OTHERWISE SPECIFIED
1. DIMENSIONS IN BRACKETS [mm] ARE IN MILLIMETERS.
2. FOR LDT OUTPUT SIGNAL CHARACTERISTICS IN THE OVERSTROKE ZONES, SEE APPROPRIATE LDT CATALOG SECTION.

Mill-Duty with Rear Mount Spherical Rod End



NOTE: FOR LDT OUTPUT SIGNAL CHARACTERISTICS IN THE OVERSTROKE ZONES, SEE APPROPRIATE LDT CATALOG

Accessories

Rod Style Magnet Applications

	940	950IS	951	952	952QD	7330	950MD
STD 4 Hole Rod Style Magnet SD0400800	✓	✓	✓	✓	✓		
Stainless Steel 4 Hole Magnet SD0480900	✓	✓	✓	✓	✓		
Non-Ferrous Spacer for 4 Hole Magnet M0822400	✓	✓	✓	✓	✓		
Aluminum Split Mag. Assembly SD0403900	✓	✓	✓	✓	✓		
Non Ferrous Spacer for Split Magnet M0750500	✓	✓	✓	✓	✓		
Large Split Magnet Assy for use w/Rod Supports SD0411200	✓	✓	✓	✓	✓	✓	
Large Split Mag S.S., Assy for use with Rod Supports SD0411201	✓	✓	✓	✓	✓	✓	
Cylinder & 950MD Magnet SD0410300	✓	✓	✓	✓	✓		✓
Teflon Coated Cylinder Magnet SD0410301	✓	✓	✓	✓	✓		✓

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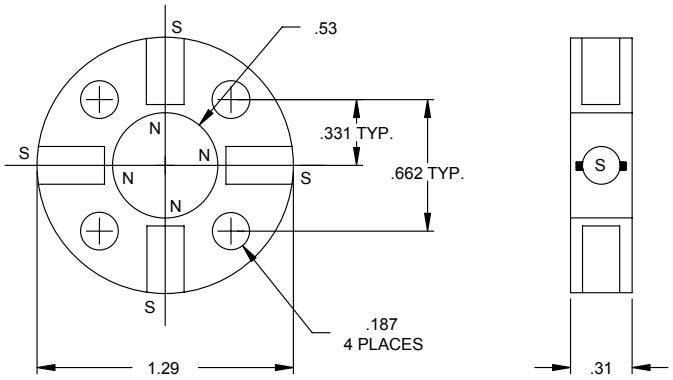
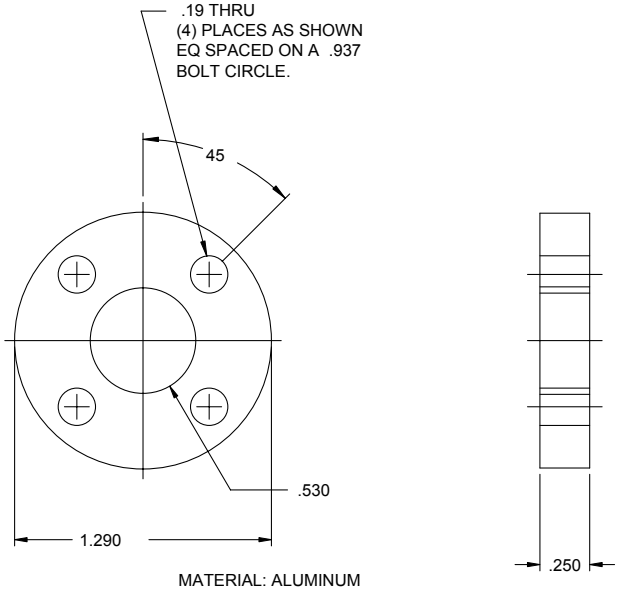
Standard 4 Hole Magnet



Part #:
SD0400800 - Standard
SD0480900 - Stainless Steel

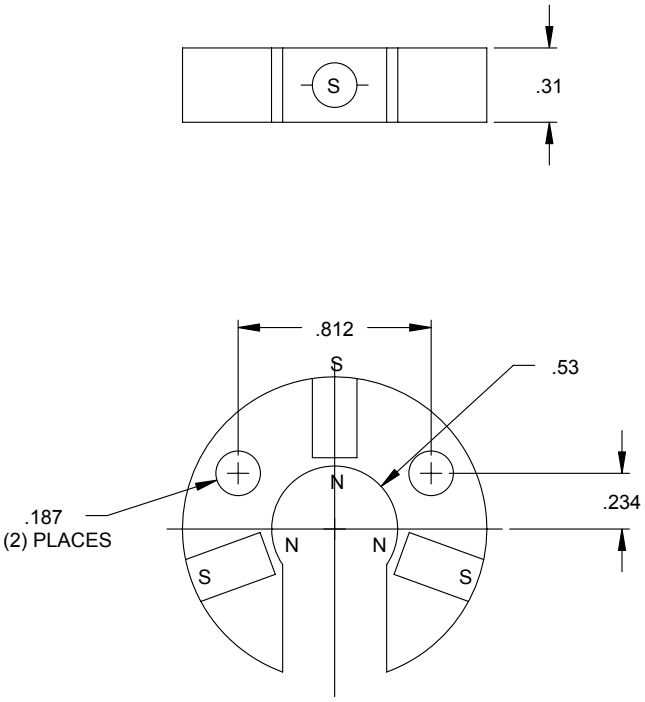
Non-Ferrous Spacer for 4 Hole Magnet



MATERIAL: ALUMINUM

Part #: M0822400

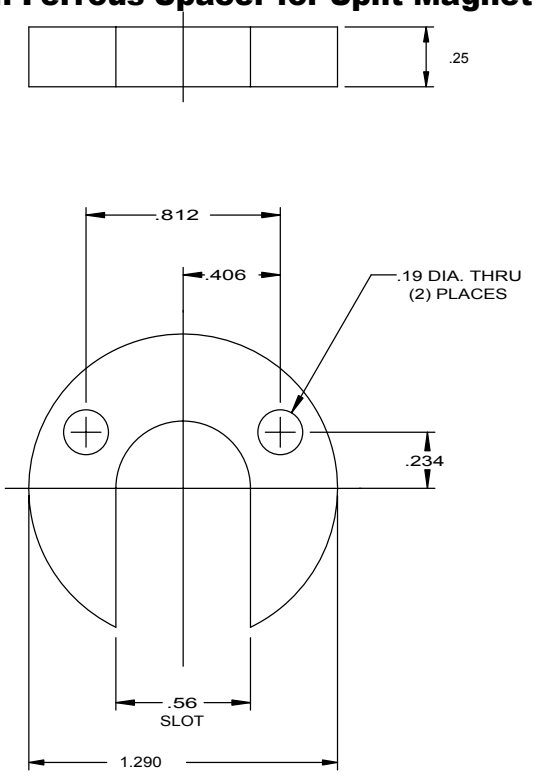
Aluminum Split Magnet



MAT'L.: ALUMINUM

Part #: SD0403900

Non-Ferrous Spacer for Split Magnet

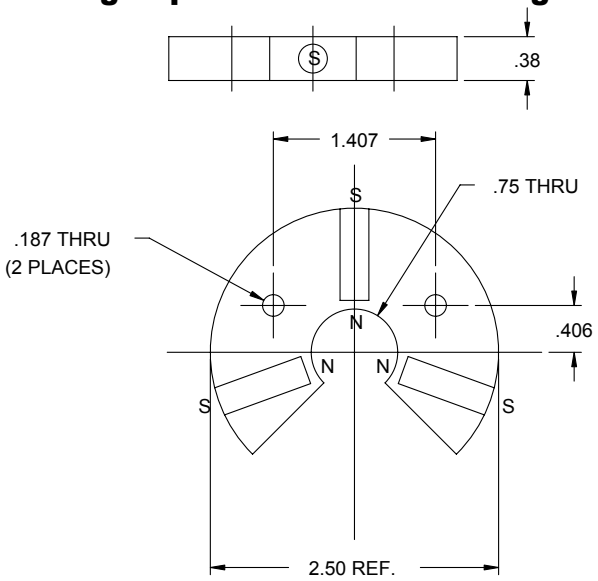


MAT'L.: ALUMINUM

Part #: M0750500

Accessories

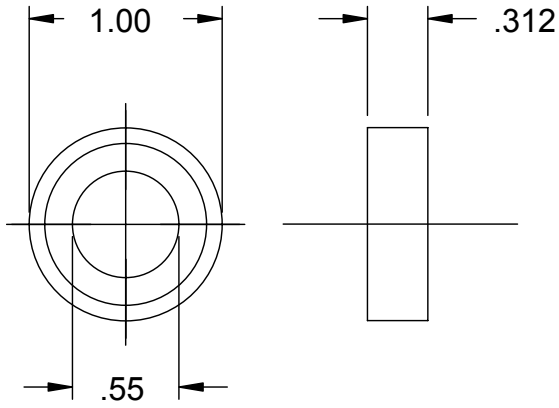
Large Split Stainless Steel Magnet



NOTE: USE THIS MAGNET WITH ROD SUPPORT BRACKET SD0411100

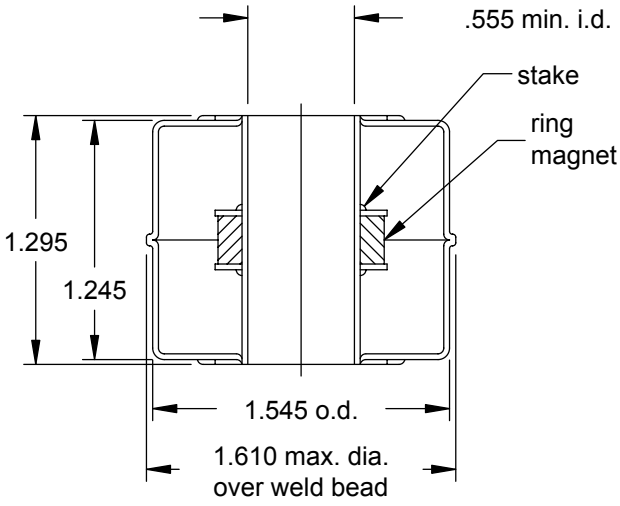
Standard Part #: SD0411200
Stainless Steel Part #: SD0411201

Cylinder Magnet



Standard Part #: SD0410300
Teflon Coated Part #: SD0410301

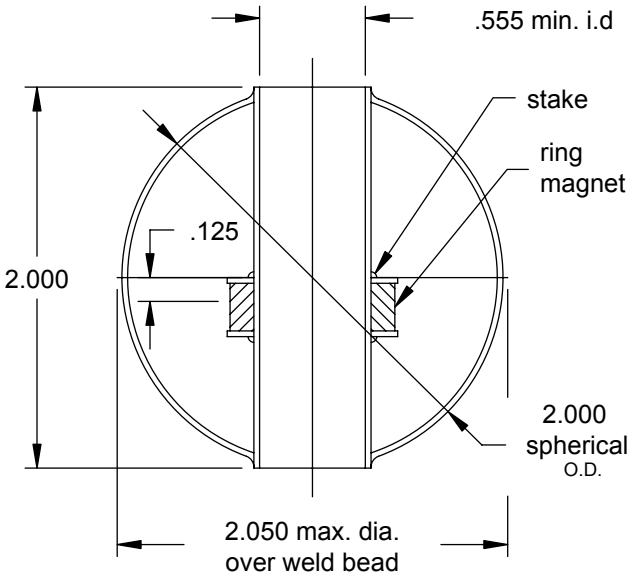
Stainless Steel Float



* For use with Series 940, 951 & 952.

Part #: 04535090

Stainless Steel Float



* For use with Series 940, 951 & 952.

Part #: 04535091

Accessories

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955 BRIK Accessories

Slide Magnet

Part #: SD0521800

Float Magnet

Part #: SD0522100

Slide Magnet Side Adapter

Part #: SD0521801

Rod Ends

Part #: 04-570252

Series 955S Programming Unit

Part #: 9551409

Control Arm

Part #: 955ARMXX (X = Inches)

Mounting Foot

Part #: SD0522000

	940	950IS	950MD	951	952	952QD	955LC	955S	955DQ	955D	955A	956	7330
10 Pin Straight Cable Assy SD0439700			✓	✓	✓	✓							
10 Pin Right Angle Cable Assy SD0439701			✓	✓	✓	✓							
10 Pin Straight High Temp Cable Assy SD0465500			✓	✓	✓	✓							
4 Pin Micro 12mm Euro Straight Cable 949-001	✓						✓	✓					
4 Pin Micro 12mm Euro Right Angle Cable 949-002	✓						✓	✓					
2 Pin Mini 16mm Euro Molded Cable 04-521210		✓											
7330 Cable 01-533141													✓
Analog Cable Termination Kit SD0443803				✓	✓								
Digital Cable Termination Kit SD0443800				✓	✓								
5 Pin Micro 12mm Euro Straight Cable 949-019					✓						✓		
5 Pin Micro 12mm Euro Right Angle Cable 949-020					✓ Optional S Connector						✓		
6 Pin Micro 12mm Euro Straight Cable 949-021										✓			
6 Pin Micro 12mm Euro Right Angle Cable 949-022										✓			
12 Pin Micro 12mm Euro Straight Cable 949-023									✓ Option E Connector				
10 Pin Micro 12mm Euro Straight Cable SD0527700									✓ Option H Connector				

Accessories

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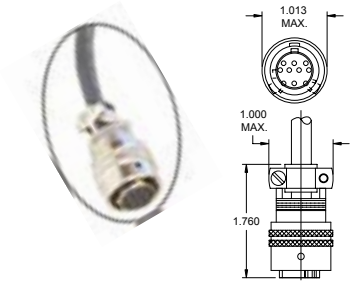
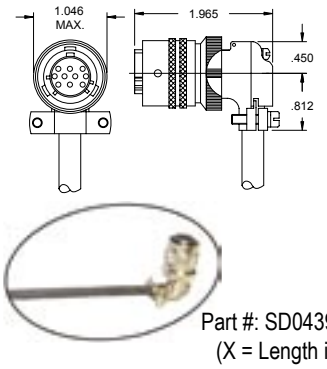
10 Pin Straight Cable



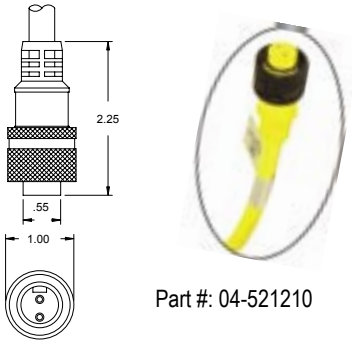
Standard Part #: SD0439700LXX
High Temp. Part #:SD0465500LXX
(X = Length in Feet)

10 Pin Right Angle Cable



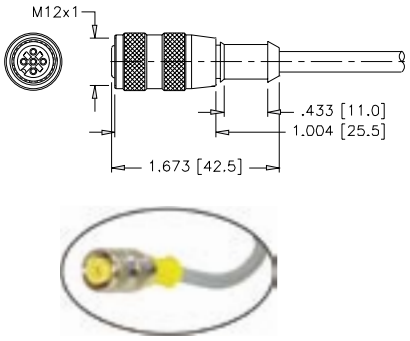
Part #: SD0439701LXX
(X = Length in Feet)

2 Pin Mini 16mm Euro Molded Cable



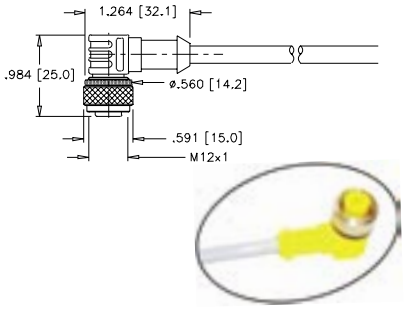
Part #: 04-521210

4, 5 & 6 Pin Micro 12mm Euro Straight Cable



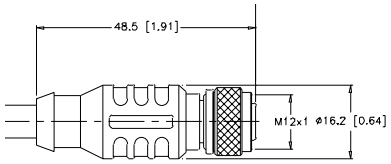
4 Pin Part #: 949-001LXX
5 Pin Part #: 949-019LXX
6 Pin Part #: 949-021LXX
(X = Length in Feet)

4, 5 & 6 Pin Micro 12mm Euro Right Angle



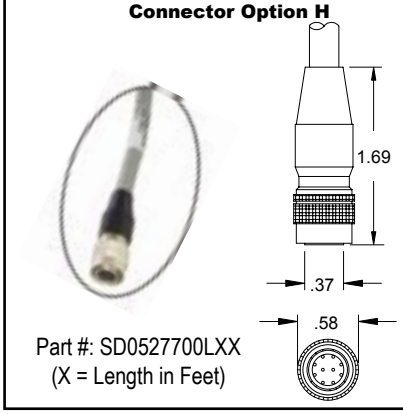
4 Pin Part #: 949-002LXX
5 Pin Part #: 949-020LXX
6 Pin Part #: 949-022LXX
(X = Length in Feet)

12 Pin Micro 12mm Euro Straight Cable
(Series 955DQ)
Connector Option E



12 Pin Part #: 949-023LXX
(X = Length in Feet)

10 Pin Straight Cable
(Series 955QD)
Connector Option H



Part #: SD0527700LXX
(X = Length in Feet)

Universal Mounting Kit

Part #: SD0441300

Cable Termination Kit

Digital Part #:
SD0443800L25
Analog Part #:
SD443803L25

Accessories

952 Connector Options

Option "T"
Threaded Metal Connector
(MTS - "RB" on Tempo II & III)

Option "Q"
Bayonet Style Connector
(MTS - "RC" on Tempo II & III)

Option "M"
1/4 Turn Quick Disconnect Connector
(MTS - "MS" on Tempo II & III)

Stainless Steel Head
Cover and Connector
(Consult Factory)

Options

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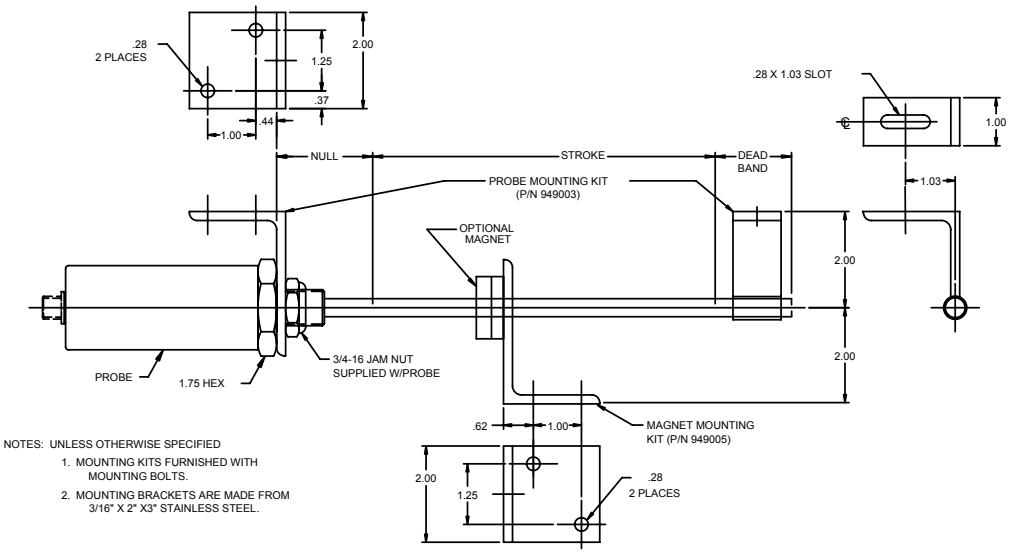
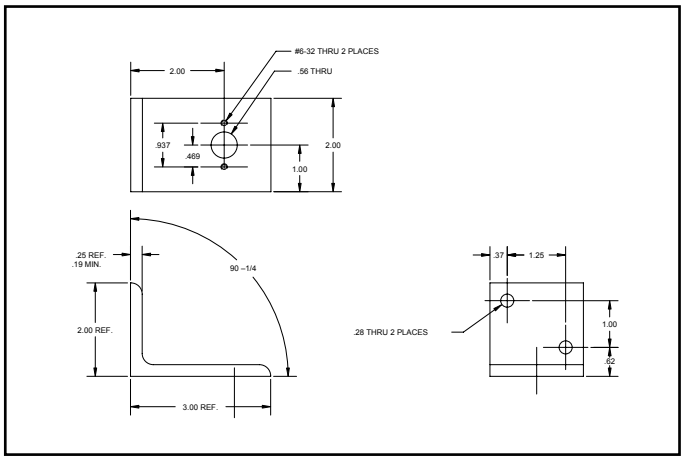
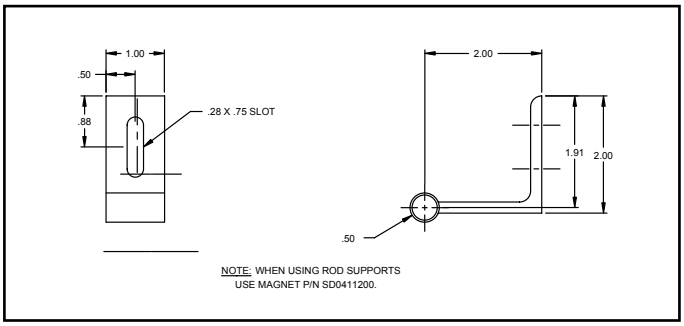
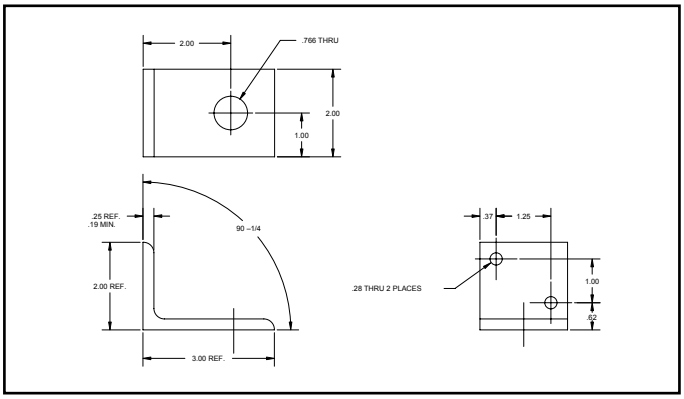
Typical Installation



Use mounting kit No. 949-003 which includes the head “L” bracket (M0748600) and the probe support bracket, (SD0411200). The magnet support bracket includes the magnet “L” bracket and hardware. It is important to use the mounting kit hardware provided, or to follow the instructions below. Magnet is sold separately. In instances where the magnet will be mounted to a ferrous surface, spacers manufactured of non-ferrous materials, such as stainless steel, nylon, etc. should be used. The spacer should be designed in such a way that any ferrous surface is no closer than 0.25” from the magnet. Ferrous material within 0.25” of the magnet will distort the magnetic flux and adversely affect the unit’s operation.



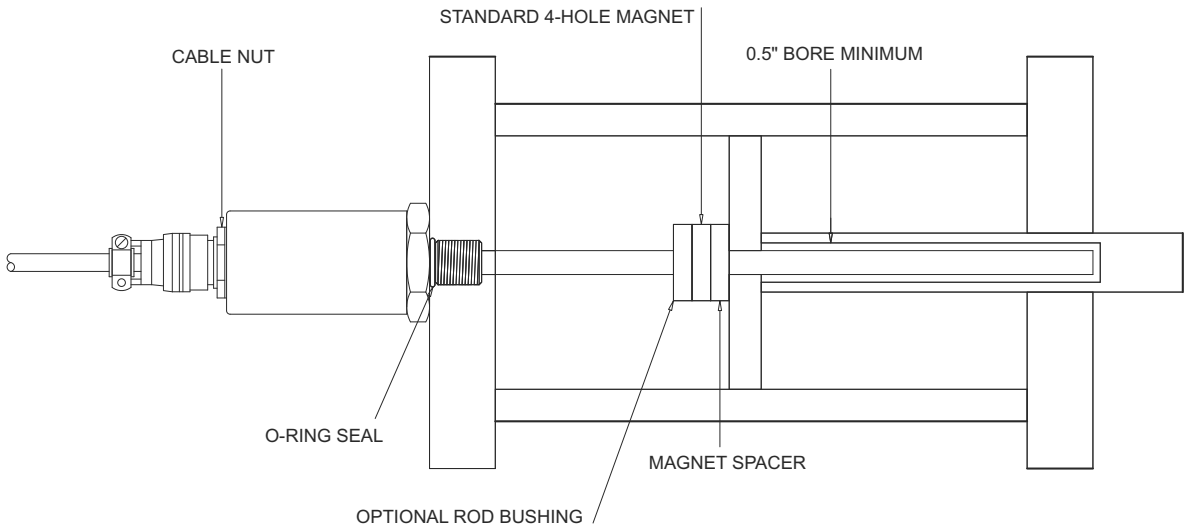




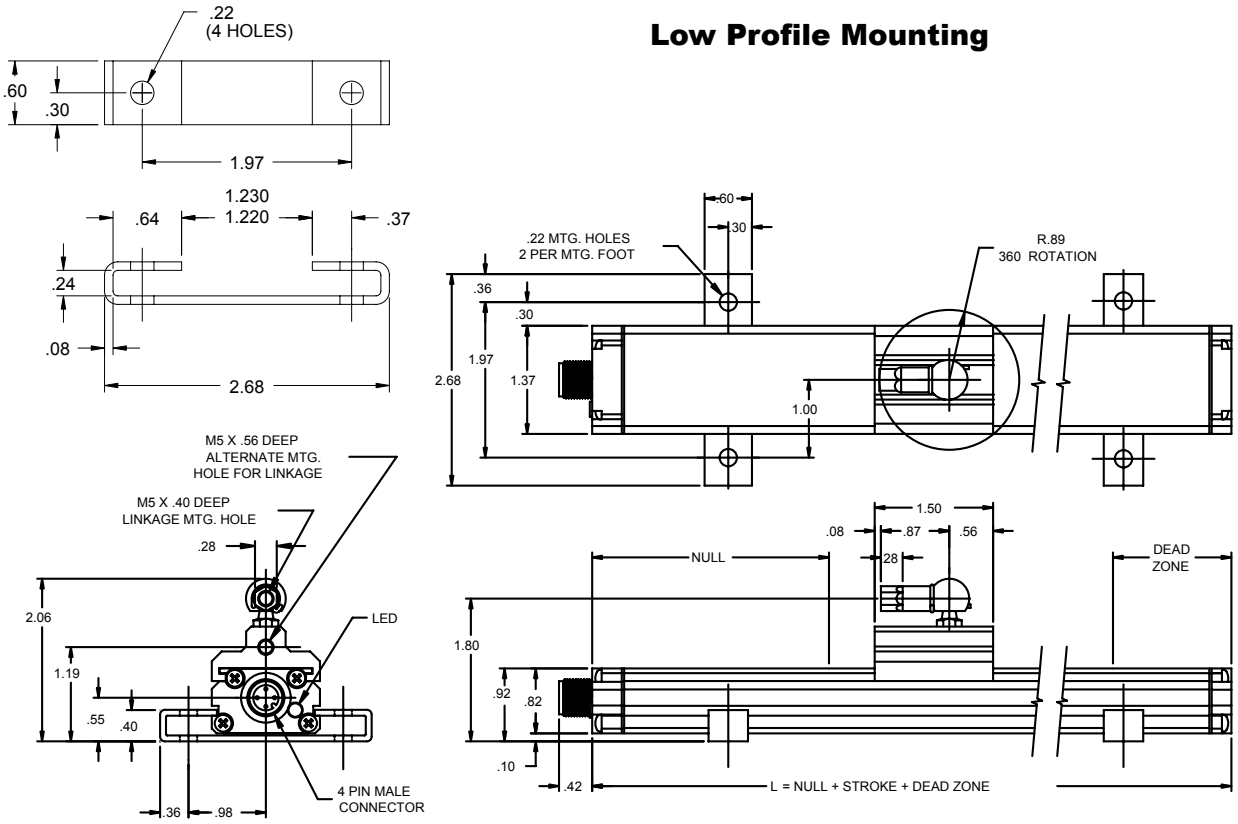
Install

Typical Installation

In Cylinder Mounting



Low Profile Mounting



Install

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Direct Connectivity

	Accessory	Application	Gemco Transducer Style	Comments
	**1746L**	PLC direct input for the Allen Bradley SLC 500 Chassis	951CP, VP, RS versions 952CP, VP2, RS versions All 955D digital versions	High speed, high accuracy card that delivers position data directly to the I/O image table every 300 microseconds.
	**2120**	LDT input module that displays position and acts as PLC interface	951VP-2110 version when a V1 board is specified. 951 or 952 CP, RS versions when an L1 board is specified	Display reads in inches or millimeters. Selectable BCD, Gray code, or Binary output. Optional analog output to indicate position and/or velocity. Optional output board provides two relay outputs.
	**2110**	Press shut height monitor	951VP-2110 version when a V1 board is specified. 951 or 952 CP, RS versions when an L1 board is specified	Designed for press shut height. Offers programmable bolster offset, zero offset, movement direction, count direction, scale offset, and negative overshoot. Decreases hit to hit setup time and offers over-travel limits.
	**1996C**	Press shut height controller	951CP versions, 952CP versions	Automatically adjusts the ram up or down to a pre-programmed shut height value for up to 500 jobs. Optional binary output.
	**1995L (Consult Factory for 4-20 Input)**	Programmable Limit Switch	940 (0-10 VDC or 4-20 mA), 955 (0-10 VDC or 4-20 mA) 951A voltage versions 952A voltage versions	Allows the transducer to have programmable setpoints throughout the range of the sensor. This unit has multiple program capability and can expand up to 30 outputs.
	**Series 948**	Din rail mount limit module	940 (0-10 VDC), 955 (0-10 VDC) 951 voltage versions 952 voltage versions	This low cost module provides four adjust-able setpoint limits within the stroke of the transducer.
	**Hand-Held Programmer & PC Interface**	Allows 951 Series to be programmed in the field	All 951 series	The field programmer allows for changes in output, polarity, span, and calibration in the transducer.
	In Line Hand Held Cable SD0457900	Allows 951 Series to be programmed in the field	All 951 series	Allows the user to plug in the hand held programmer. In Line Hand-Held Programmer Patch Cable, Use with Part Number 951-1405
	**In Line Active Zone Programming Unit 955-1409**	Allows 955S & 955A to be programmed in the field	955A, 955S, 956A, 956S	The field programmer allows for changes in output, polarity, span, and calibration in the transducer.
	**Battery Operated Test/ Programming Unit SD0528800**	Allows Voltage 955S & 955A to be programmed in the field	952A, 955A, 955S, 956A, 956S	The field programmer allows for changes in output, polarity, span, and calibration in the transducer.
	**Battery Operated Test/ Programming Unit SD0528801**	Allows Current 955S & 955A to be programmed in the field	952A, 955A, 955S, 956A, 956S	The field programmer allows for changes in output, polarity, span, and calibration in the transducer.

Connect

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Other Products

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