

# GEMCO Series Displacement Transducer

Datasheet  
502787  
Issue 2  
EDCR18327



## S953

- ▶ 25.4 mm to 7620 mm measuring range
- ▶ <0.01% linearity
- ▶ Vibration resistant to 30G
- ▶ Shock resistant to 1000G
- ▶ Tricolor diagnostic LED
- ▶ All standard current and voltage analogue outputs
- ▶ RS, VP, CP, TP Digital outputs
- ▶ IP 68
- ▶ Protective housings for harsh environments

The S953 VMAX Linear Displacement Transducer is the ideal solution for automation solutions requiring accurate feedback of continuous position. It is especially recommended in environments where vibrations, extreme temperature and contaminants are present. The S953 is an ideal solution when velocity and position need to be incorporated into the automation control system process.

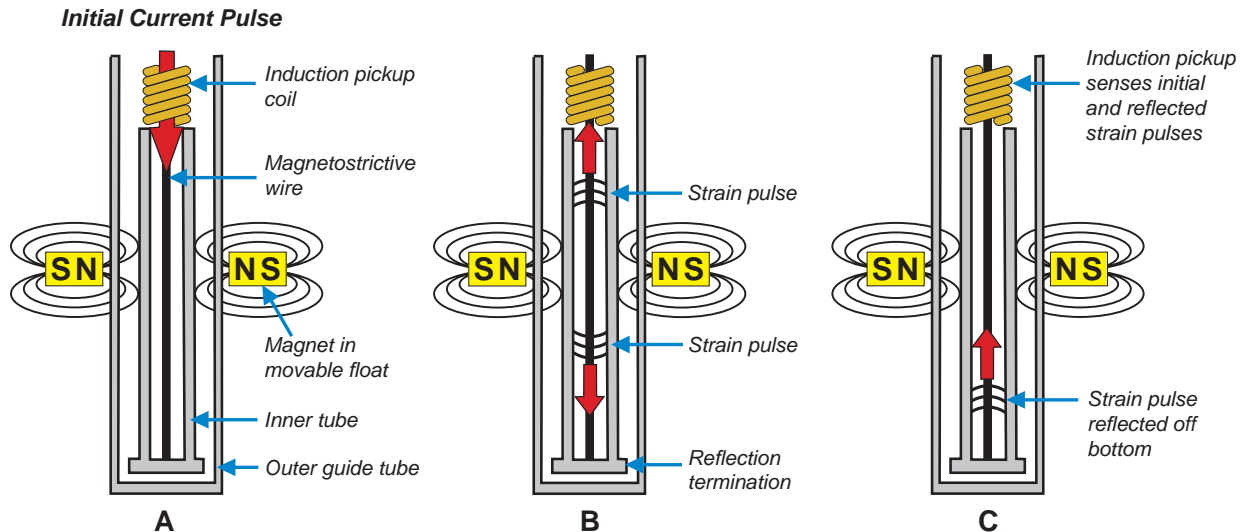
## S955

- ▶ 100 mm to 4572 mm measuring range
- ▶ <0.05% linearity
- ▶ Non contact applications
- ▶ Analogue voltage and current outputs
- ▶ Analogue zero and span adjustable
- ▶ Digital RS, VP, CP outputs
- ▶ Quadrature outputs
- ▶ Tricolor diagnostic LED
- ▶ IP67 (Optional IP68)



The S955 Brik linear displacement transducer is an economical solution for monitoring continuous position. It is designed for OEM users wishing to opt for a cost effective alternative to limit switches, proximity sensors or linear potentiometers. The streamlined anodized aluminium extrusion houses the sensing element and the electronics. The position is determined by the magnet which is linearly guided over the sensing element.

# Magnetostrictive Technology Made Easy



**In a Gemco Series 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.

## Linearity

The degree that the indicated position of the magnet at points along the stroke varies from the actual physical position. 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.

# Applications

## Printing/Bindery



The industrial construction of the GEMCO Series products means that these devices are perfectly suited to applications such as assembly automation, material handling, and robotics.

## Automotive



## Material Handling



## Pulp/Paper



GEMCO Series products can be found in areas such as lumber mills, steel mills, stamping plants, etc.,

## Food/Beverage

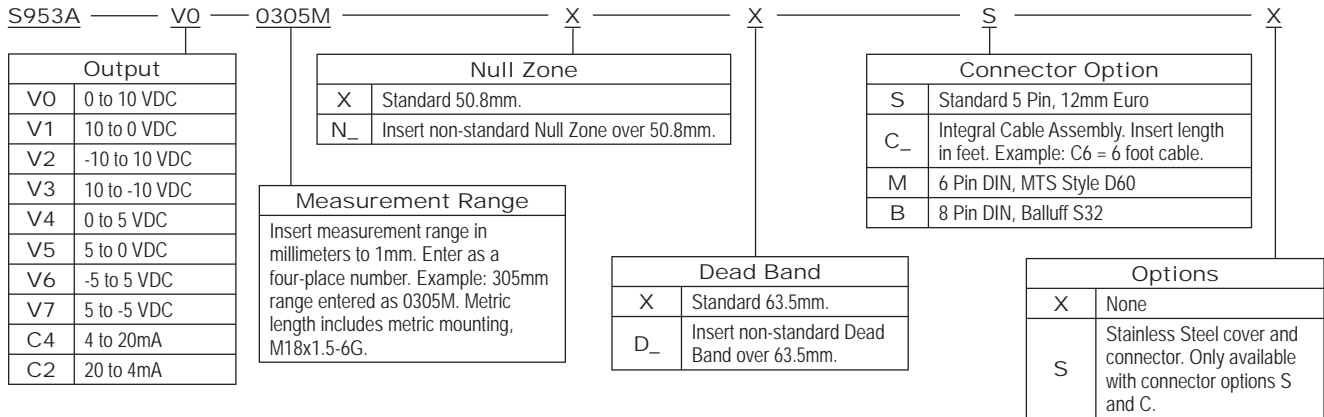


## Forestry/Lumber

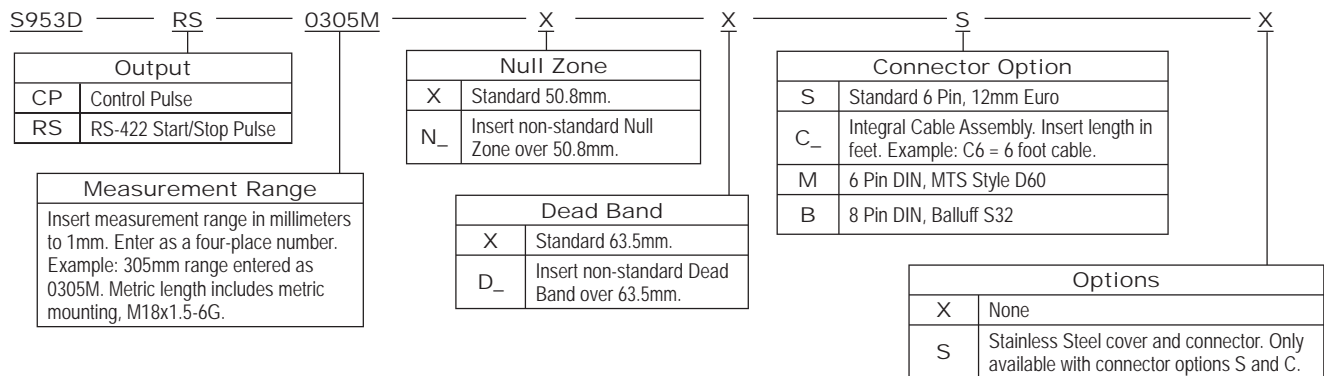


# S953 Drawings and Part Numbers

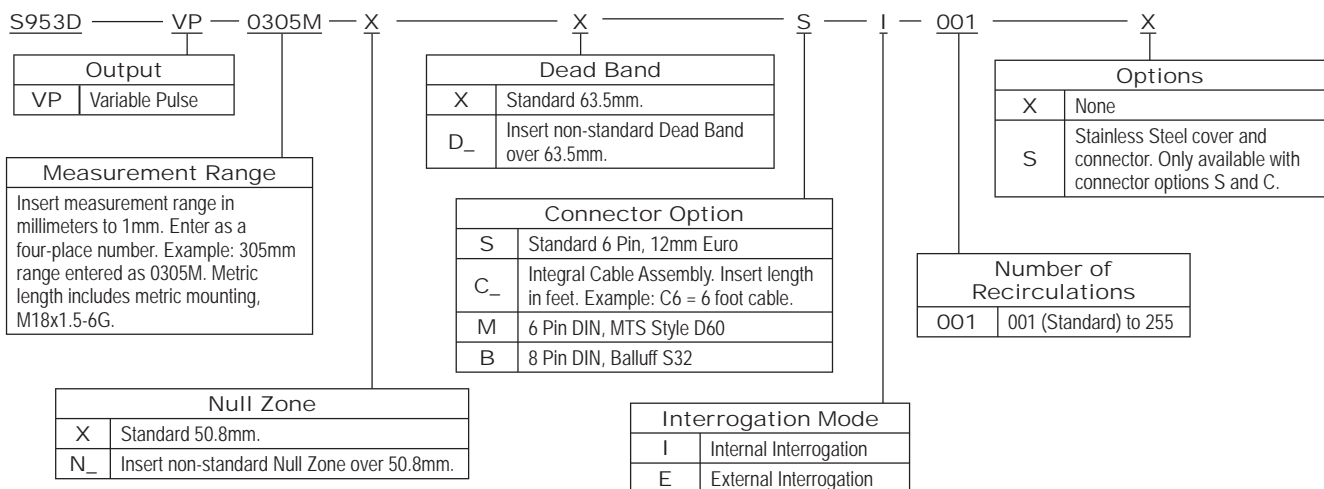
## Analogue Part Numbers



## Digital, CP and RS Part Numbers

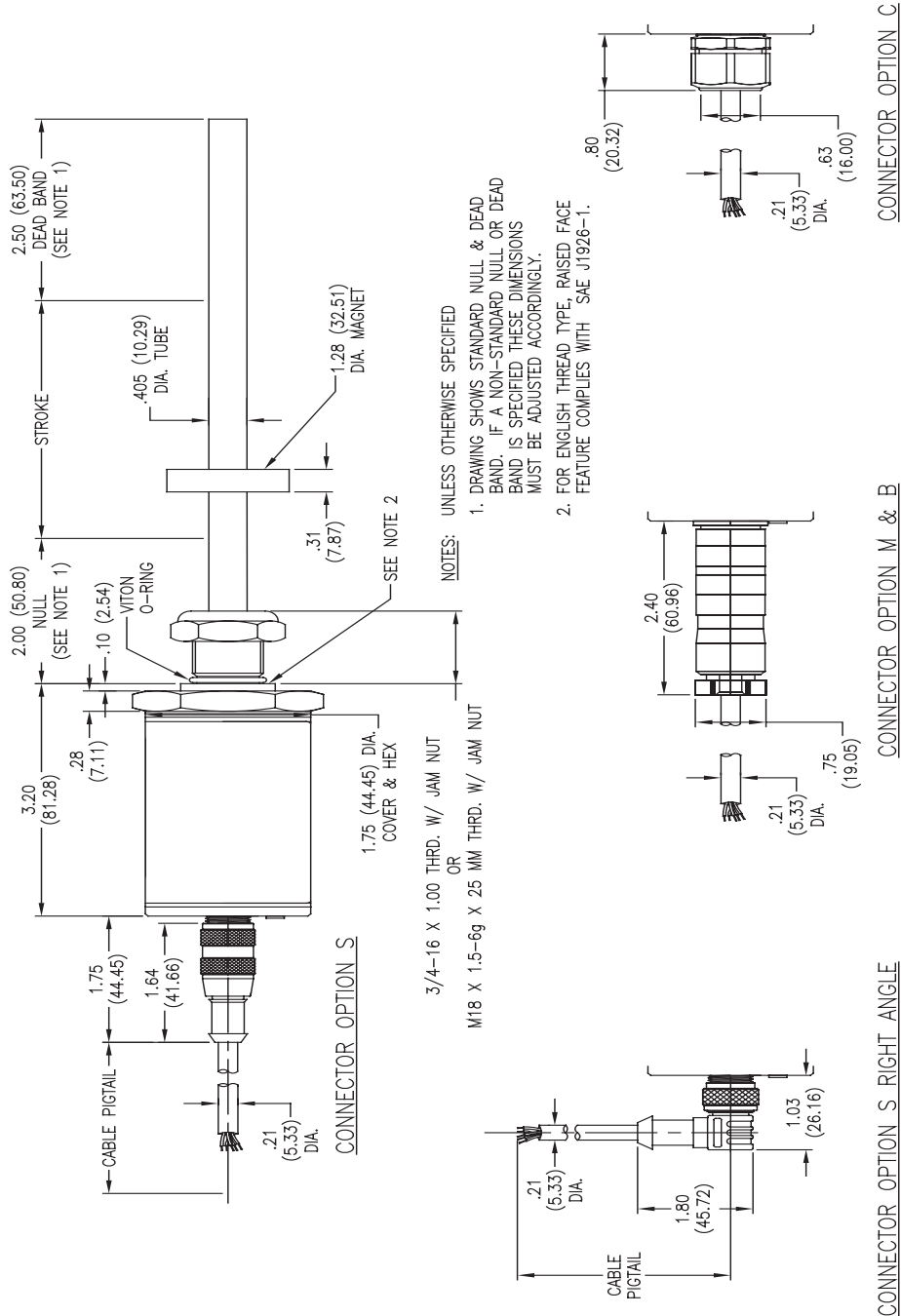


## Digital, VP (PWM) Part Numbers



NOTE: Metric LDTs cannot be used with standard 950MD housings. Consult factory.

# Dimensions



S953A Accessories		
Part Number	Description	Use With Connector
949011L6	2m (6 Foot), 5 Pin, Straight, 12mm Euro Cable	S
949011L12	4m (12 Foot), 5 Pin, Straight, 12mm Euro Cable	S
949012L6	2m (6 Foot), 5 Pin, Right Angle, 12mm Euro Cable	S
949012L12	4m (12 Foot), 5 Pin, Right Angle, 12mm Euro Cable	S
SD0553200LXX	6 Pin DIN Cable	M
SD0553300LXX	8 Pin DIN Voltage Cable	B
SD0553400LXX	8 Pin DIN Current Cable	B
SD0400800	Standard 4 Hole Magnet	All

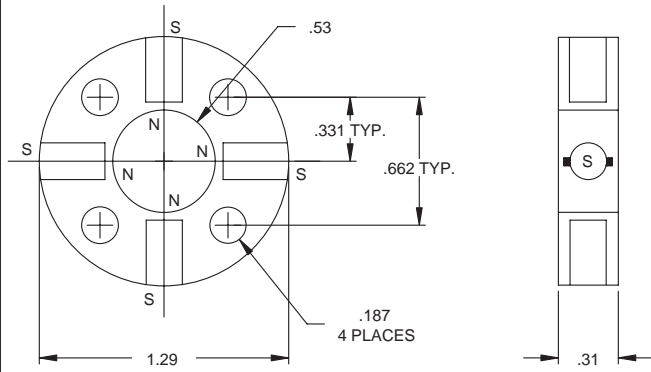
Consult factory for complete accessory offerings. XX = Length in Feet.

S953D Accessories		
Part Number	Description	Use With Connector
949029L6	2m (6 Foot) 6 Pin, Straight, 12mm Euro Cable	S
949029L12	4m (12 Foot), 6 Pin, Straight, 12mm Euro Cable	S
949030L6	2m (6 Foot), 6 Pin, Right Angle, 12mm Euro Cable	S
949030L12	4m (12 Foot), 6 Pin, Right Angle, 12mm Euro Cable	S
SD0554500LXX	6 Pin DIN Cable	M
SD0554600LXX	8 Pin DIN Cable	B
SD0400800	Standard 4 Hole Magnet	All

Consult factory for complete accessory offerings. XX = Length in Feet.

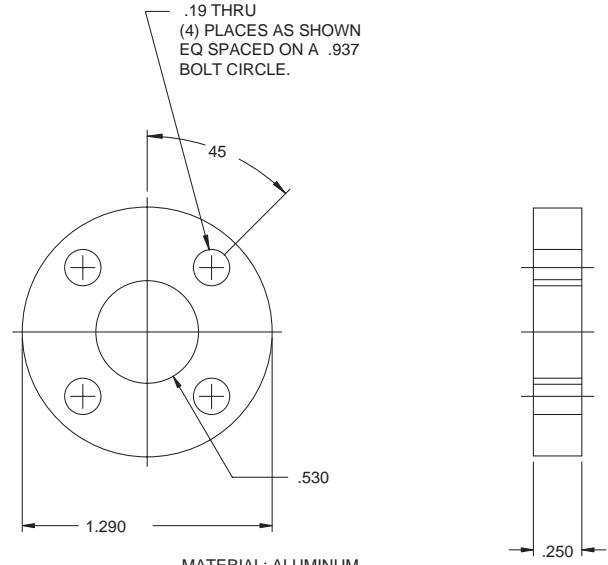
# Rod Magnets

Standard 4 Hole Magnet



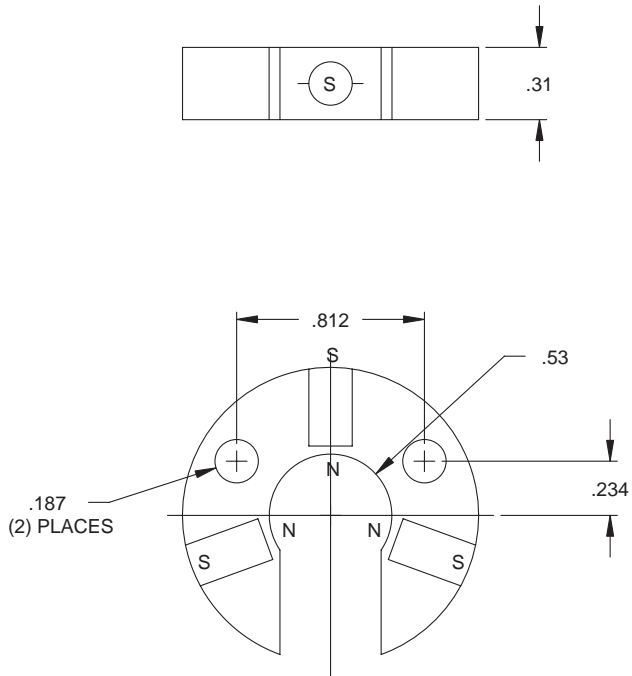
Standard P/N: SD0400800  
Stainless Steel P/N: SD0480900

Non-Ferrous Spacer for 4 Hole Magnet



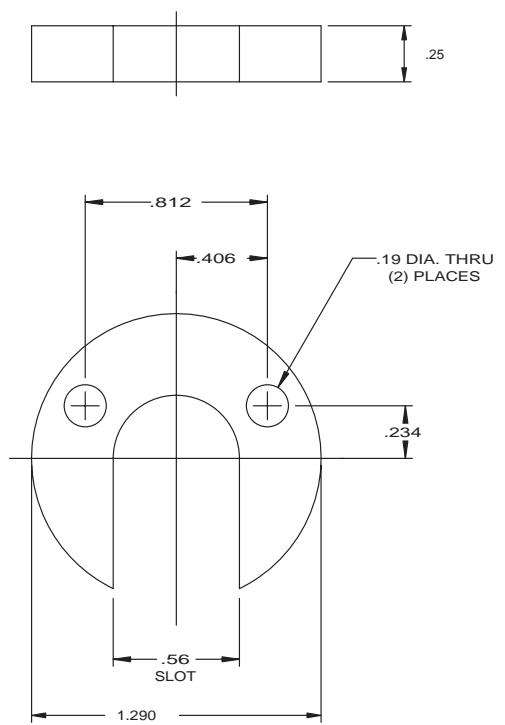
MATERIAL: ALUMINUM  
P/N: M0822400

Aluminum Split Magnet



MAT'L.: ALUMINUM  
P/N: SD0403900

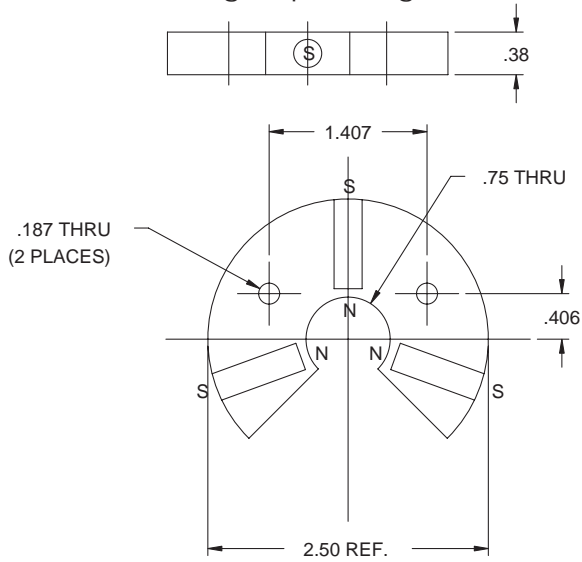
Non-Ferrous Spacer for Split Magnet



MAT'L.: ALUMINUM  
P/N: M0750500

# Rod Magnets

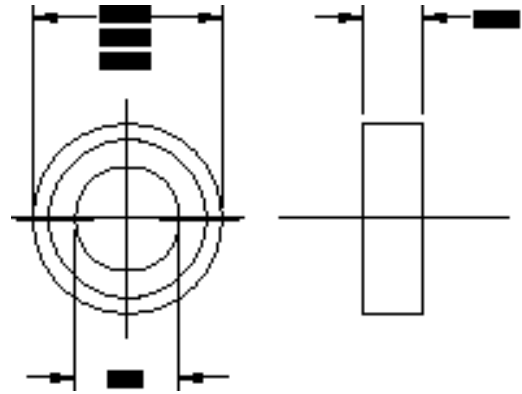
Large Split Magnet



NOTE: USE THIS MAGNET WITH ROD SUPPORT BRACKET SD0411100

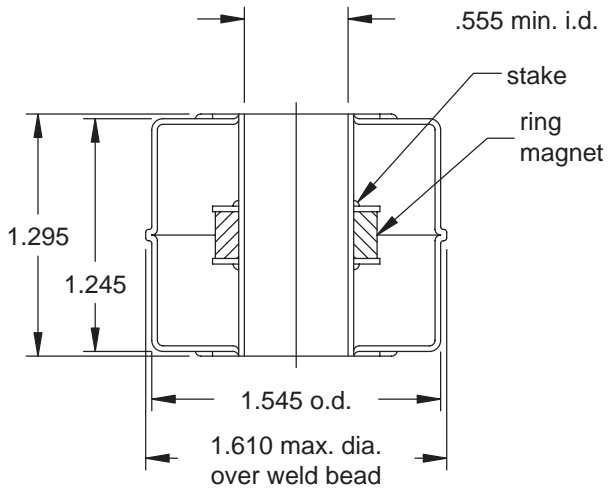
Standard P/N: SD0411200  
Stainless Steel P/N: SD0411201

Cylinder Magnet



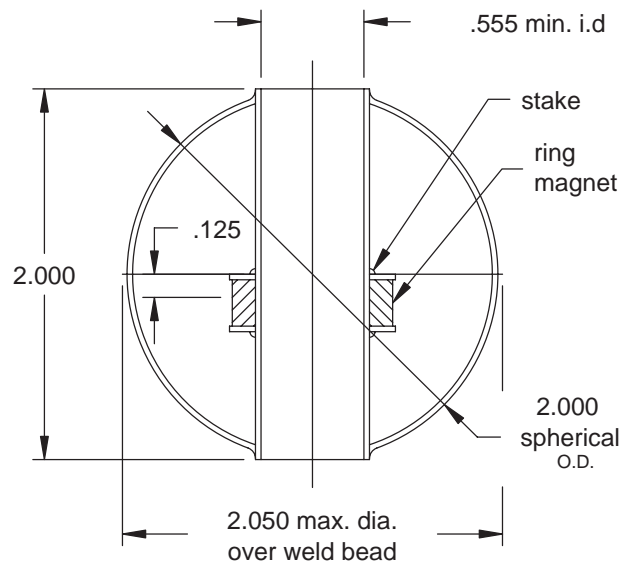
Standard P/N: SD0410300  
Teflon Coated P/N: SD0410301

Stainless Steel Float



\* For use with 940, 951 & 952.  
P/N: 04535090

Stainless Steel Float

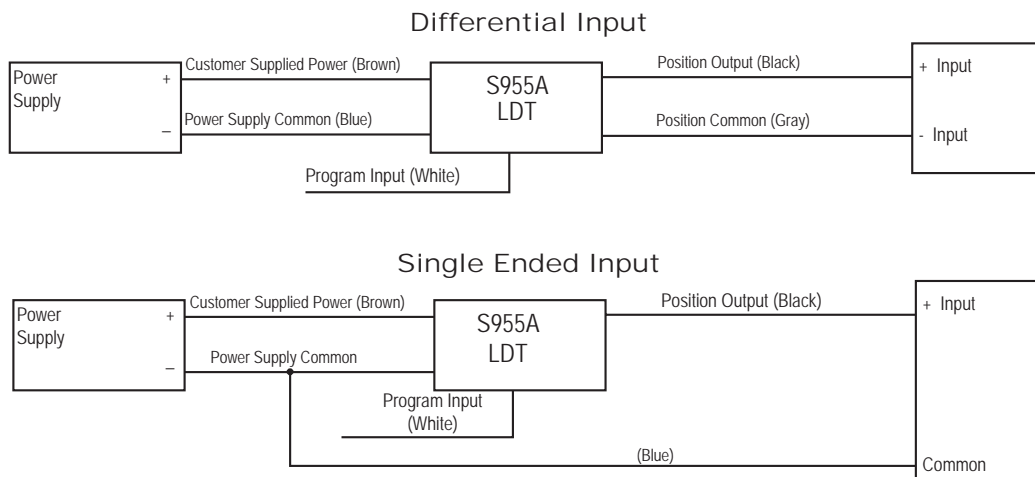
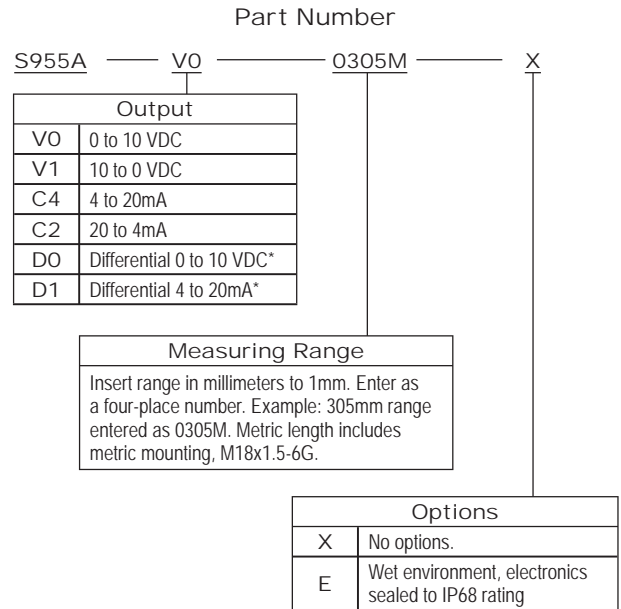


\* For use with 940, 951 & 952.  
P/N: 04535091

# S955 Drawings and Part Numbers

## S955A

Accessories	
Item	Part Number
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
2m (6 Ft.) Cable	949019L6
4m (12 Ft.) Cable	949019L12
2m (6 Ft.) Cable: Right Angle Connector	949020L6
4m (12 Ft.) Cable: Right Angle Connector	949020L12



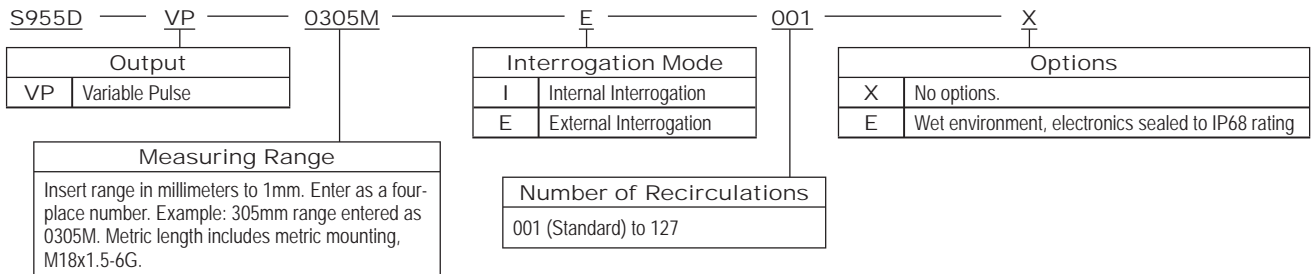
**Note:** S955A-C is current sourcing, which allows the current to flow from the LDT into the user's equipment.



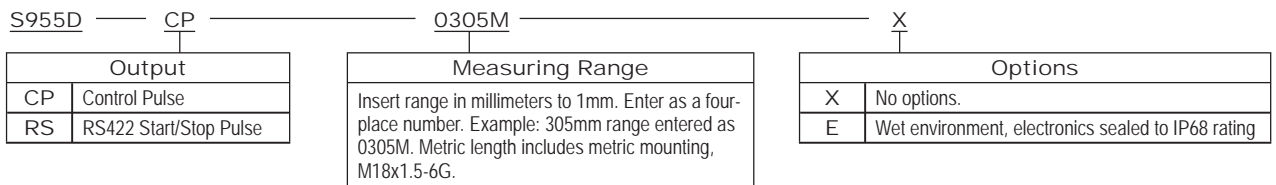
# S955D

Accessories	
Item	Part Number
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
2m (6 Ft.) Cable (6 Pin, Straight Micro Connector, Option E)	949021L6
3m (12 Ft.) Cable (6 Pin, Straight Micro Connector, Option E)	949021L12
2m (6 Ft.) Cable (6 Pin, Right Angle Micro Connector, Option E)	949022L6
3m (12 Ft.) Cable (6 Pin, Right Angle Straight Micro Connector, Option E)	949022L12

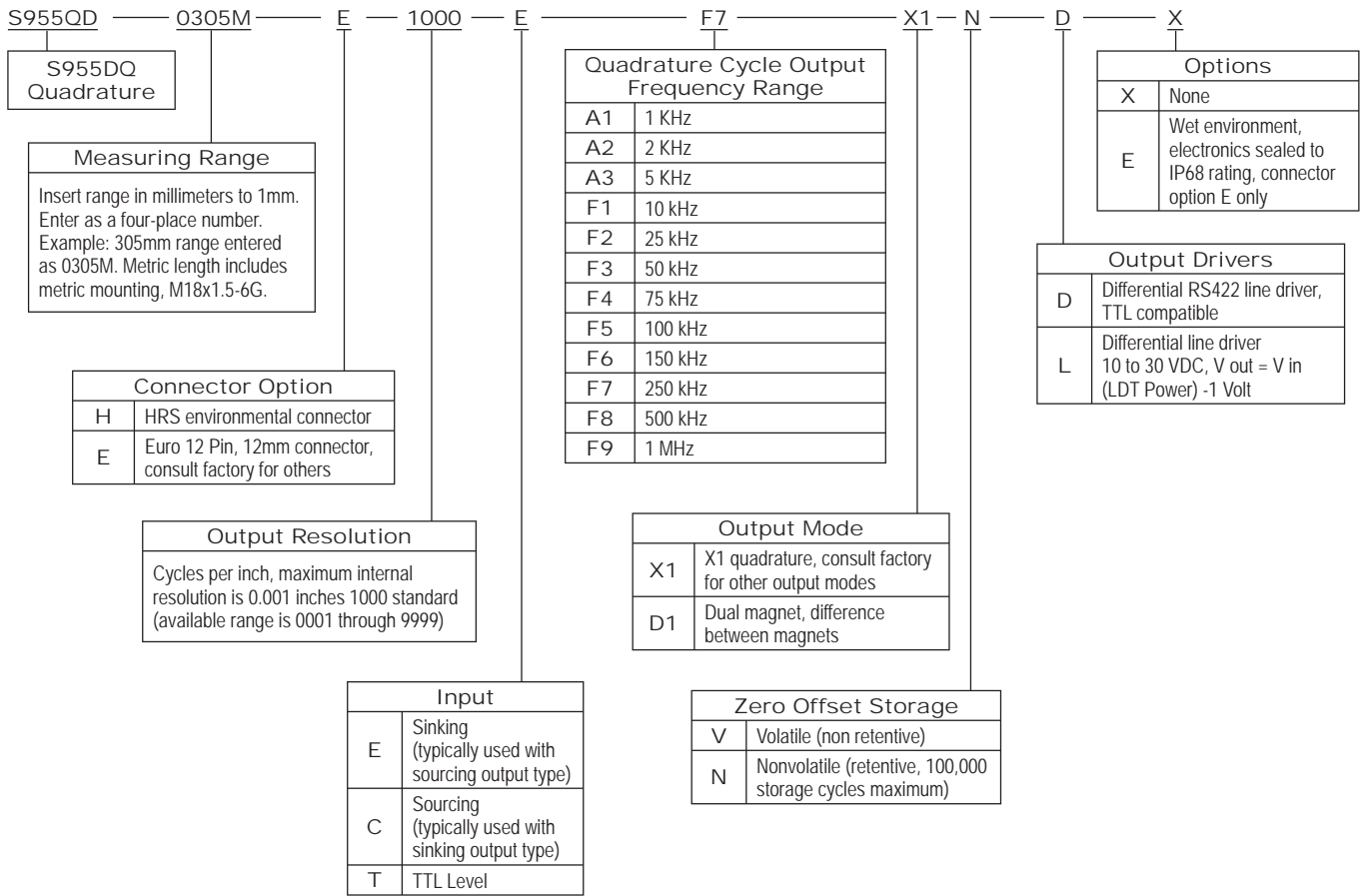
## Variable Pulse



## Control Pulse or Stop/Start Pulse



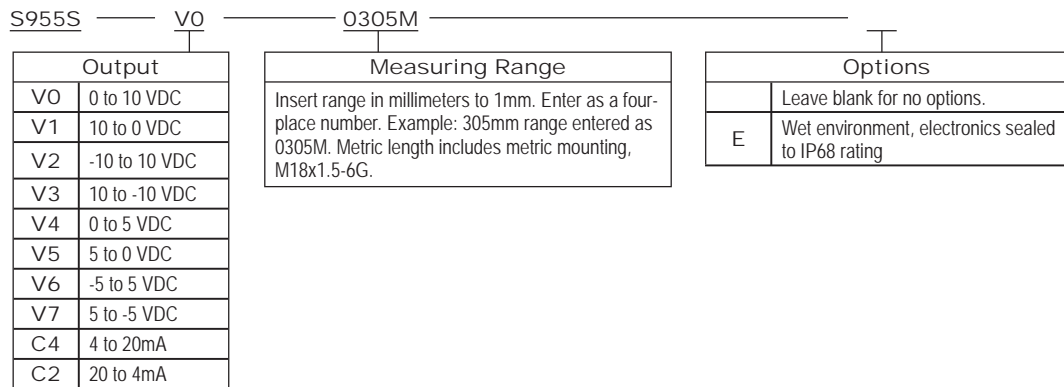
# S955DQ



Accessories	
Item	Part Number
Slide Magnet	SD0521800
Float Magnet	SD0522100
Mounting Foot	SD0522000
2m (6 Ft.) Cable (Option H)	SD0527700L6
3m (12 Ft.) Cable (Option H)	SD0527700L12
7m (25 Ft.) Cable (Option H)	SD0527700L25
2m (6 Ft.) 12 Pin (Option E Connector)	949023L6
3m (12 Ft.) 12 Pin (Option E Connector)	949023L12
Control Arm	955ARMXX (X = Inches)

# S955S

## Part Numbering

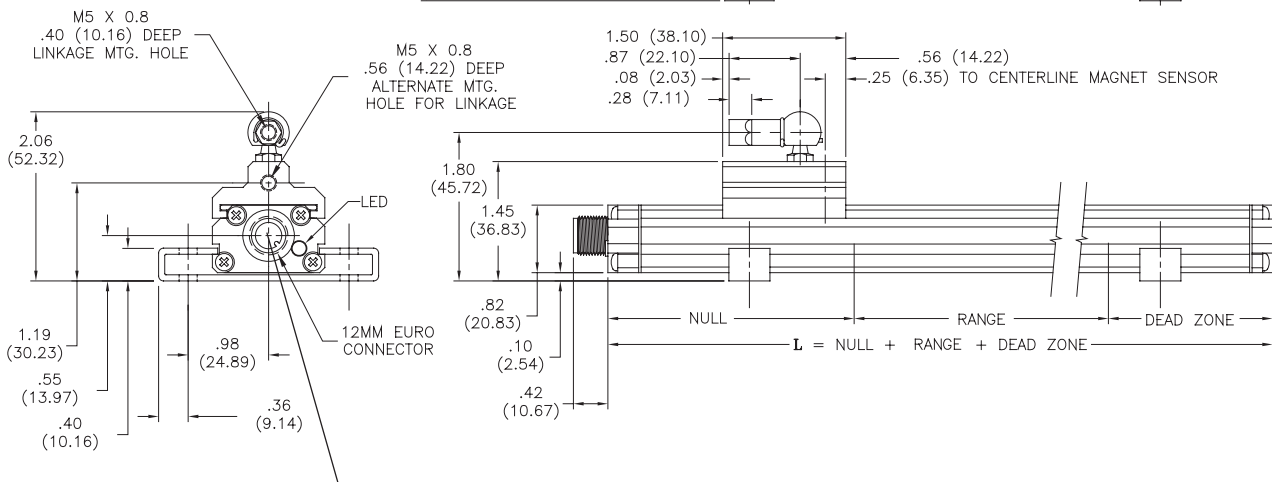
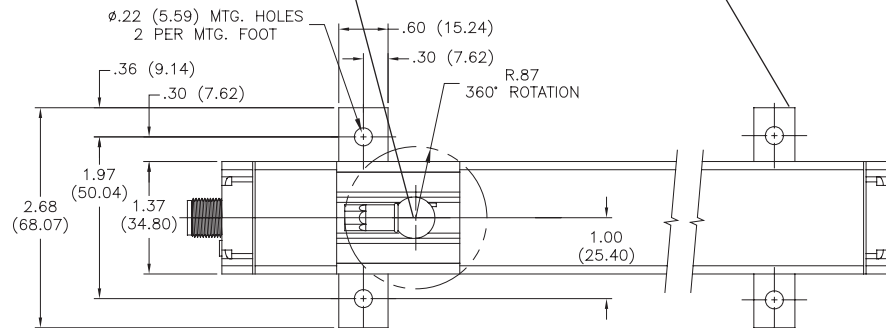


Accessories	
Item	Part Number
Slide Magnet	SD0521800
Slide Magnet Side Adapter	SD0521801
Float Magnet	SD0522100
Mounting Foot	SD0522000
2m (6 Ft.) Cable	949001L6
3m (12 Ft.) Cable	949001L12
2m (6 Ft.) Cable, Right Angle Connector	949002L6
3m (12 Ft.) Cable, Right Angle Connector	949002L12
Control Arm	955ARMXX (X = Inches)
In-Line Programming Unit	955-1409
Rod Ends	04-570252

# Dimensions

Mounting brackets (SD0522000) slide in the grooves on the side of the extruded housing. When tightened down with fastening hardware the mounting brackets clamp the unit into place. It is recommended to use one mounting bracket on each end and every 1m between.

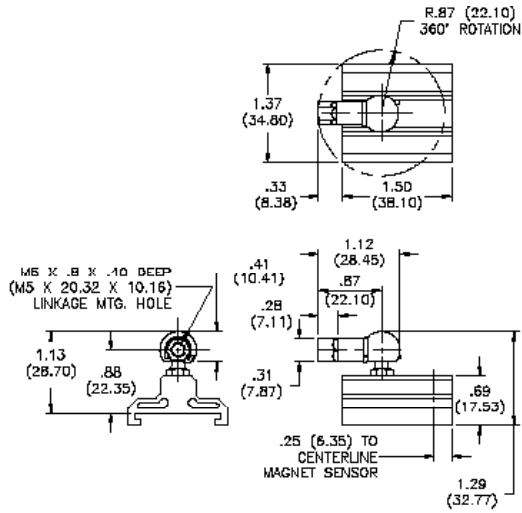
A standard female swivel mounting arm is provided with the slide magnet assembly. For extensions and other options contact the factory.



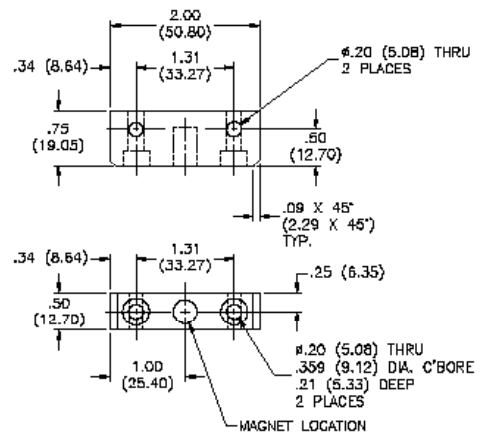
A standard 12 mm 5 pin micro connector is used. Straight mating cables can be ordered in a 2m length (949019L6), or 4m length (949019L12). If space is a consideration a right angle connector is also available, (949020L6 or 949020L12).

\* WARNING: do not use cord sets with LED's

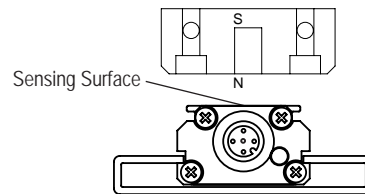
Slide Magnet Assembly  
Part Number SD0521800



Floating Magnet Assembly  
Part Number SD0522100

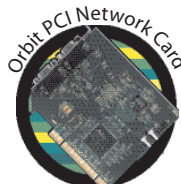
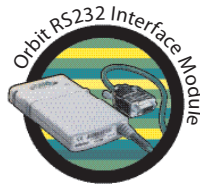
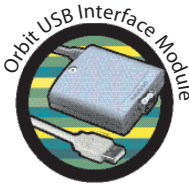
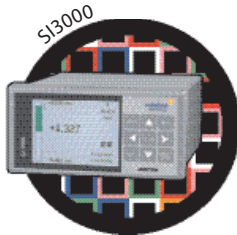
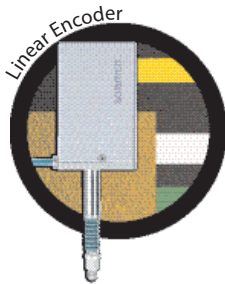
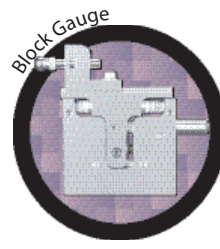
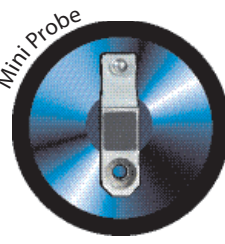
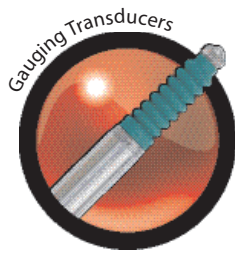


Floating Magnet Assembly (SD0522100)



NOTE: The north pole of the magnet should be pointed towards the probe.

## Also Available at Solartron Metrology



## Solartron Metrology Offices

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