

SP1

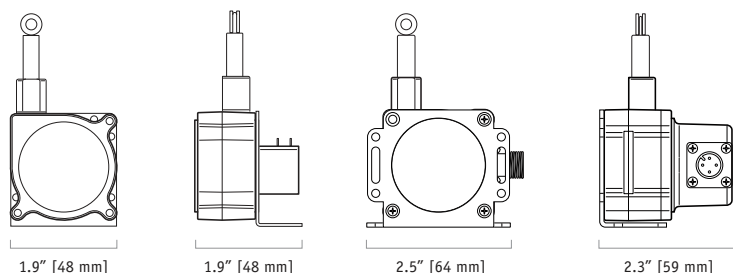
Compact String Pot • Voltage Divider Output

Linear Position to 50 inches (1270 mm)

Rugged Polycarbonate Enclosure • IP67 Optional

Mounting Bracket & Optional Sensor Cover w/Connector

IN STOCK for Quick Delivery!



COMPLETE SPECIFICATIONS

Full Stroke Range Options	0-4.75, 0-12.5, 0-25, 0-50 inches
Output Signal	voltage divider (potentiometer)
Accuracy	± 0.25 to $\pm 1.00\%$ (see ordering info)
Repeatability	$\pm 0.05\%$ full stroke
Resolution	essentially infinite
Measuring Cable	0.019-in. dia. nylon-coated stainless steel
Measuring Cable Tension	see ordering information
Maximum Cable Acceleration	see ordering information
Enclosure Material	polycarbonate
Sensor	plastic-hybrid precision potentiometer
Weight, max. (includes bracket)	.4 lbs (.19 kg)

ELECTRICAL

Input Resistance	10K ohms, $\pm 10\%$
Power Rating, Watts	2.0 at 70°F derated to 0 at 250°
Recommended Maximum Input Voltage	30 V (AC/DC)
Output Signal Change Over Full Stroke Range	94% $\pm 4\%$ of input voltage
Electrical Connection, SP1-xx	solder terminals
Electrical Connection, SP1-xx-3	4-pin, M12 connector

ENVIRONMENTAL

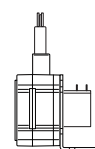
Enclosure	IP 50 (SP1-xx), IP67 (SP1-xx-3)
Operating Temperature, SP1-xx	0° to 160°F (-18° to 70°C)
Operating Temperature, SP1-xx-3	-40° to 160°F (-40° to 70°C)
Vibration	up to 10 g to 2000 Hz maximum



This compact stringpot with “voltage divider” output, provides ease-of-use and flexibility for measurement ranges up to 50 inches. Made of rugged polycarbonate, the SP1 fits in small spaces, doesn’t need perfect alignment and ships with a stainless steel mounting bracket to let the user easily orient this sensor in just about any direction imaginable.

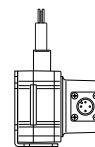
The SP1 is available with a connector, mating plug and sensor cover to protect against IP67 (wet) environments and a lower cost, “open” sensor version priced for both the budget conscious single piece user and the OEM alike.

ORDERING INFORMATION



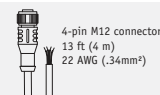
includes sensor & mounting bracket.

Part Number	full stroke range	accuracy	max. acceleration	measuring cable tension ($\pm 25\%$)	cycle life
SP1-4	4.75 in (120 mm)	1.00%	15 g	7oz. (1,9 N)	2.5M
SP1-12	12.5 in (317 mm)	.25%	15 g	7oz. (1,9 N)	500K
SP1-25	25 in (635 mm)	.25%	15 g	7oz. (1,9 N)	500K
SP1-50	50 in (1270 mm)	.25%	15 g	7oz. (1,9 N)	250K



includes sensor, mounting bracket & mating connector.

Part Number	full stroke range	accuracy	max. acceleration	measuring cable tension ($\pm 25\%$)	cycle life
SP1-4-3	4.75 in (120 mm)	1.00%	11 g	11.5 oz. (3,2 N)	2.5M
SP1-12-3	12.5 in (317 mm)	.25%	11 g	13.9 oz. (3,7 N)	500K
SP1-25-3	25 in (635 mm)	.25%	11 g	11.5 oz. (3,2 N)	500K
SP1-50-3	50 in (1270 mm)	.25%	11 g	11.5 oz. (3,2 N)	250K



Optional Cordset

Part No. **9036810-0040** for all SP1-xx-3 versions, an optional 13-ft. cordset with 4-pin M12 connector

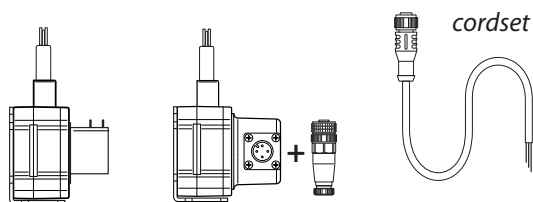
20630 Plummer Street • Chatsworth, CA 91311
tel: 800.423.5483 • +1.818.701.2750 • fax: +1.818.701.2799

measurement
SPECIALTIES™

celesco

celesco.com • info@celesco.com

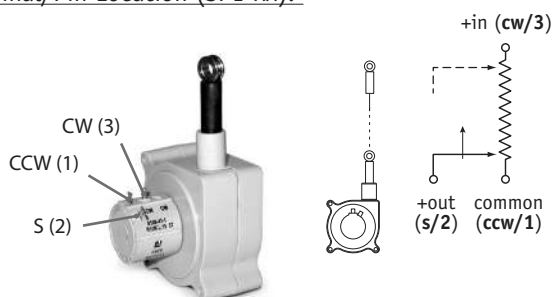
Electrical Connection:



Signals

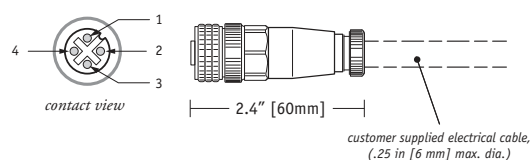
	solder terminals	pin	pin - colorcode
+in	#3 (cw)	1	1 - brown
common	#1 (ccw)	2	2 - white
+out	#2 (s)	3	3 - blue
n/c		4	4 - black

Terminal/Pin Location (SP1-xx):

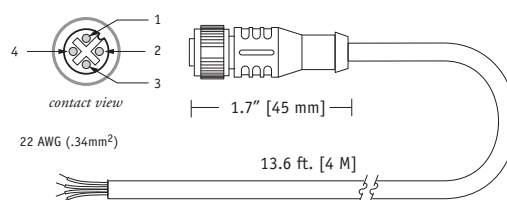


Connector/ Cordset (SP1-xx-3):

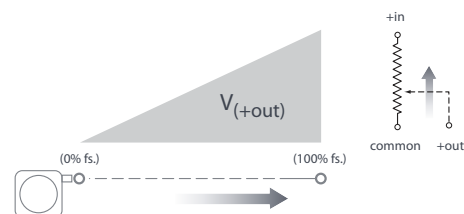
field installable connector (included)



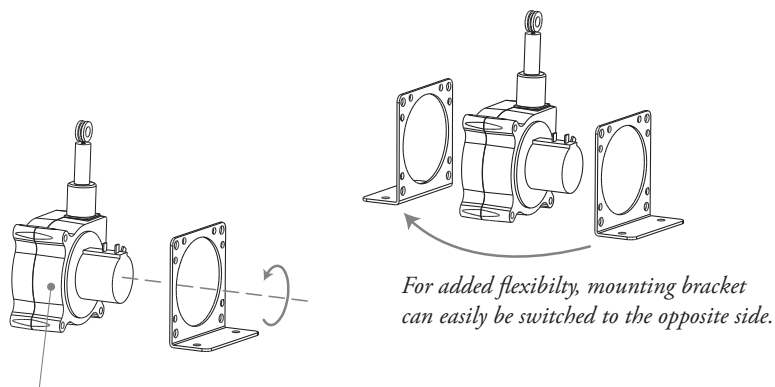
cordset, part no. 9036810-0040 (optional)



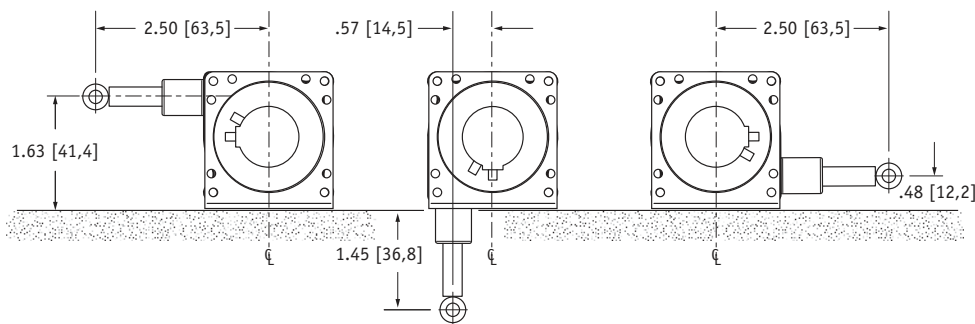
Output Signal:



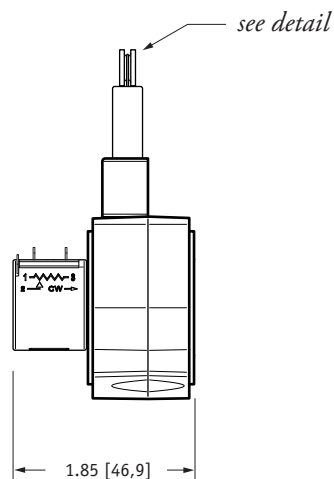
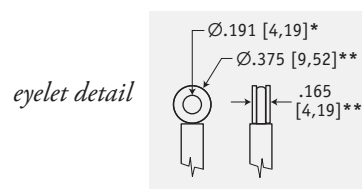
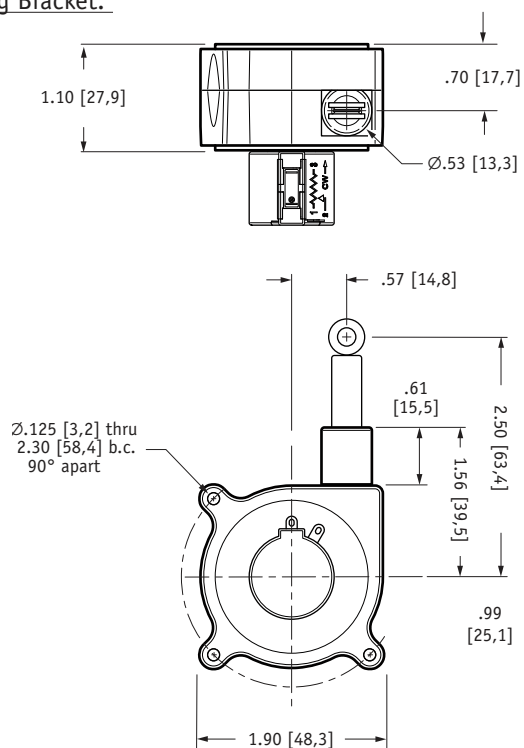
Mounting Options for SP1-xx:



To change measuring cable direction simply remove the 3 bracket attaching screws and rotate sensor body to desired direction.



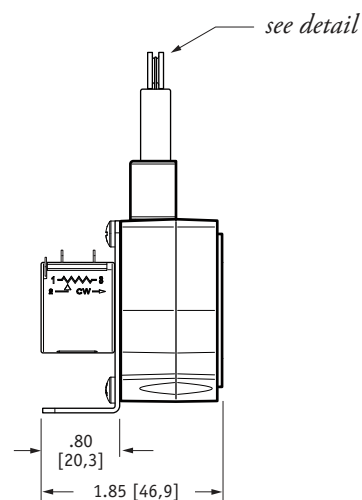
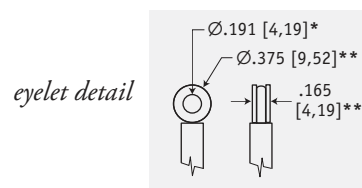
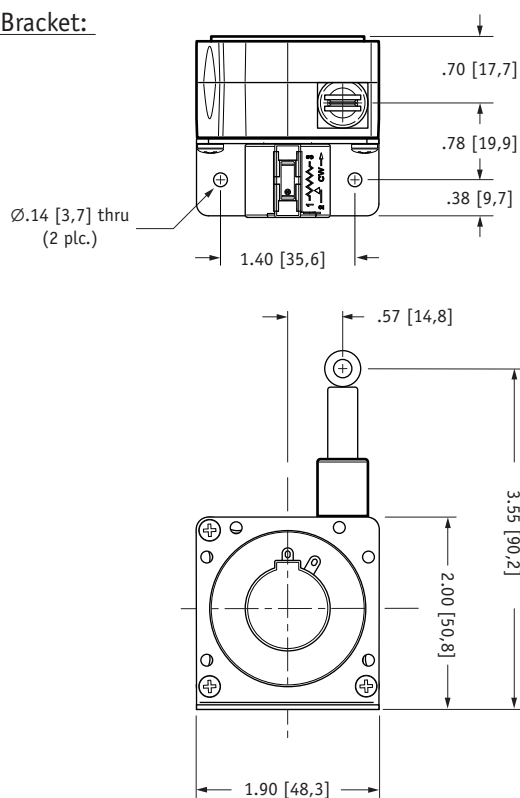
SP1-xx w/o Mounting Bracket:



DIMENSIONS ARE IN INCHES [MM]
TOLERANCES ARE 0.04 IN. [1,0 MM] UNLESS OTHERWISE NOTED.

* tolerance = +.005 - .001 [+0,1 -0,0]
** tolerance = +.005 - .005 [+0,1 -0,1]

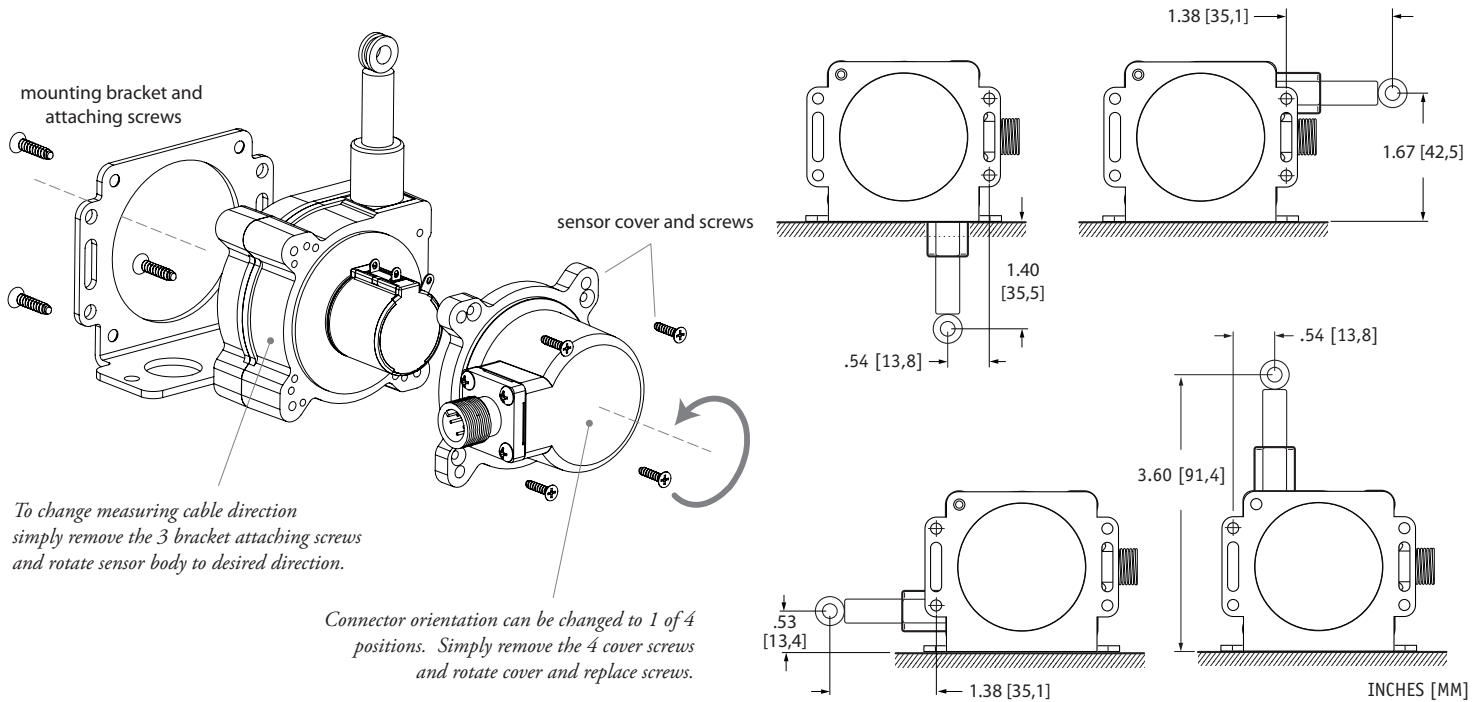
SP1-xx w/ Mounting Bracket:



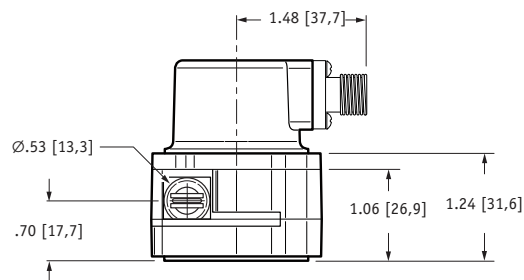
DIMENSIONS ARE IN INCHES [MM]
TOLERANCES ARE 0.04 IN. [1,0 MM] UNLESS OTHERWISE NOTED.

* tolerance = +.005 - .001 [+0,1 -0,0]
** tolerance = +.005 - .005 [+0,1 -0,1]

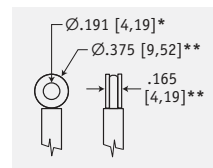
Mounting Options for SP1-xx-3:



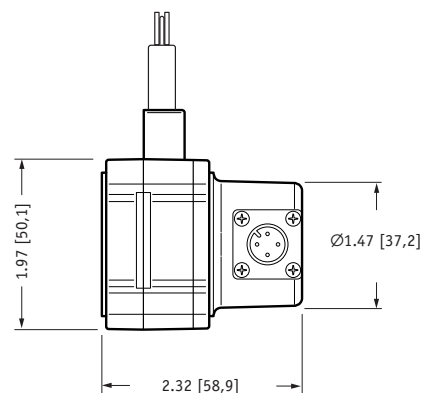
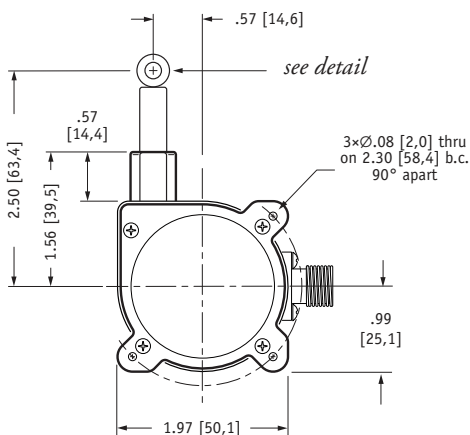
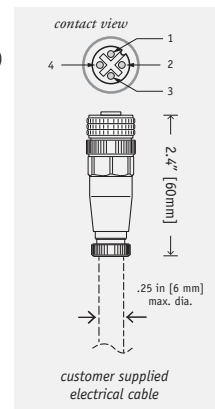
SP1-xx-3 w/o Mounting Bracket:



eyelet detail



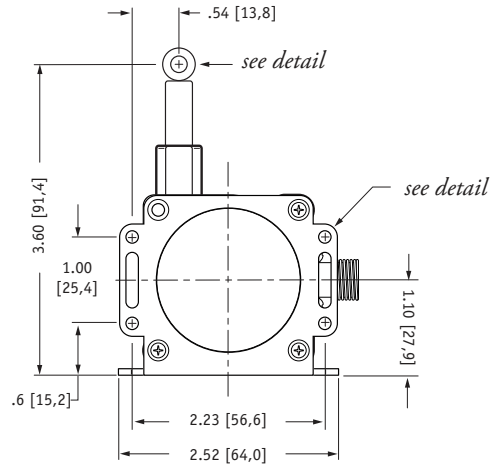
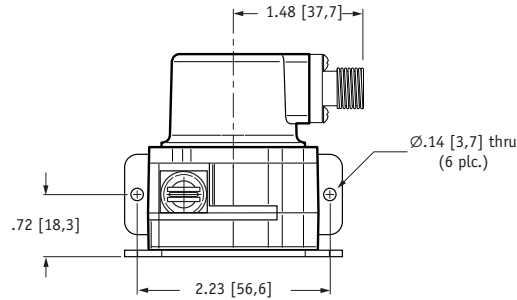
mating plug (included)



DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.04 IN. [1,0 MM] unless otherwise noted.

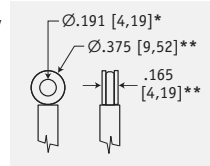
* tolerance = +.005 -.001 [+0,1 -0,0]
** tolerance = +.005 -.005 [+0,1 -0,1]

SP1-xx-3 w/ Mounting Bracket:

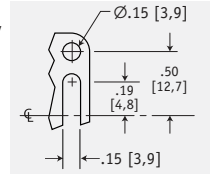


DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.04 IN. [1,0 MM] unless otherwise noted.

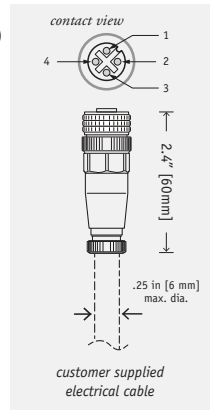
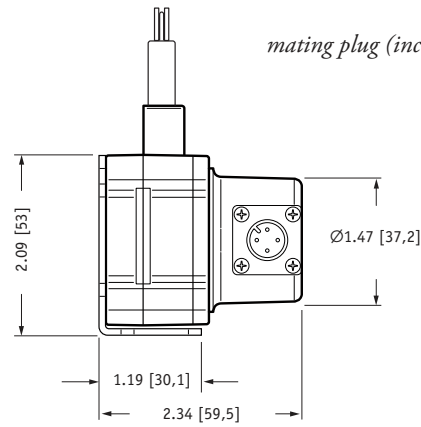
eyelet detail



bracket detail



mating plug (included)



* tolerance = +.005 -.001 [+0,1 -0,0]
** tolerance = +.005 -.005 [+0,1 -0,1]

version: 12.0 last updated: June 16, 2014

SP2

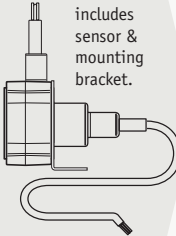
Compact String Pot • Voltage Divider Output

Linear Position to 50 inches (1270 mm)

Low-Cost, Long Life • Rugged Polycarbonate Enclosure

40-in. Electrical Cable • Free-Release Tolerant

In Stock for Quick Delivery!

	Part No.	full stroke range	accuracy (% of f.s.)	cycle life
	SP2-4	4.75 in (120 mm)	1.00%	2.5M cycles
	SP2-12	12.5 in (317 mm)	0.25%	500K cycles
	SP2-25	25 in (635 mm)	0.25%	500K cycles
	SP2-50	50 in (1270 mm)	0.25%	250K cycles

COMPLETE SPECIFICATIONS

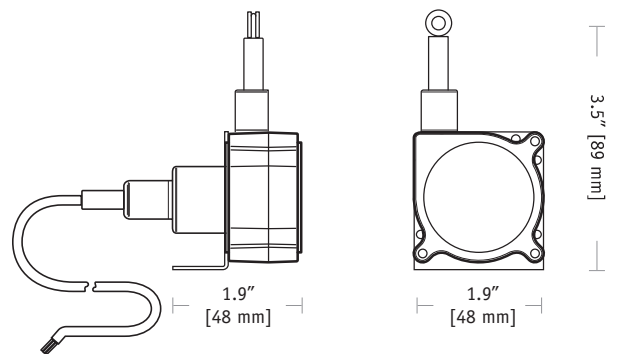
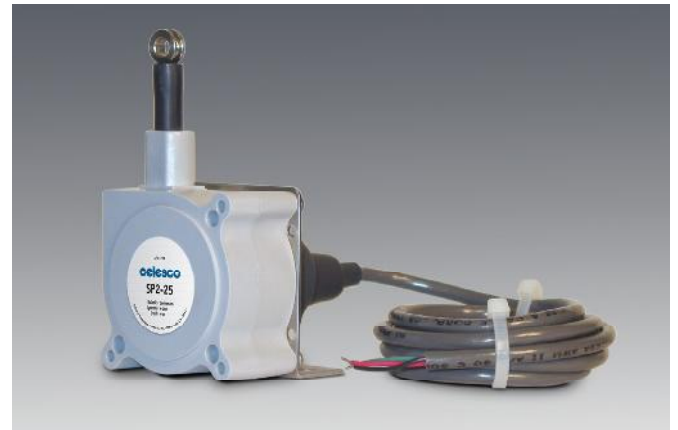
Full Stroke Range Options	0-4.75, 0-12.5, 0-25, 0-50 inches
Output Signal	voltage divider (potentiometer)
Accuracy	± 0.25 to $\pm 1.00\%$ (see part no. above)
Repeatability	$\pm 0.05\%$ full stroke
Resolution	essentially infinite
Measuring Cable	0.019-in. dia. nylon-coated stainless steel
Measuring Cable Tension	7 oz. (1.9 N) $\pm 25\%$
Maximum Cable Acceleration	15 g
Enclosure Material	polycarbonate
Sensor	plastic-hybrid precision potentiometer
Weight	5 oz. (w/o mounting bracket) max.

ELECTRICAL

Input Resistance	10K ohms, $\pm 10\%$
Power Rating, Watts	2.0 at 70°F derated to 0 at 250°
Recommended Maximum Input Voltage	30 V (AC/DC)
Output Signal Change Over Full Stroke Range	94% $\pm 4\%$ of input voltage
Electrical Connection	40-inch long, 24 guage shielded electrical cable

ENVIRONMENTAL

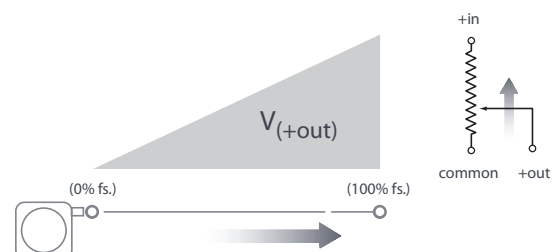
Enclosure	IP 50
Operating Temperature	0° to 160°F (-18° to 71°C)
Vibration	up to 10 g to 2000 Hz maximum



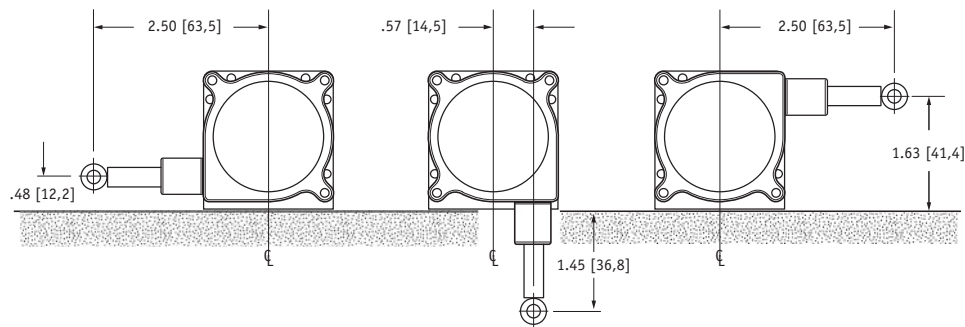
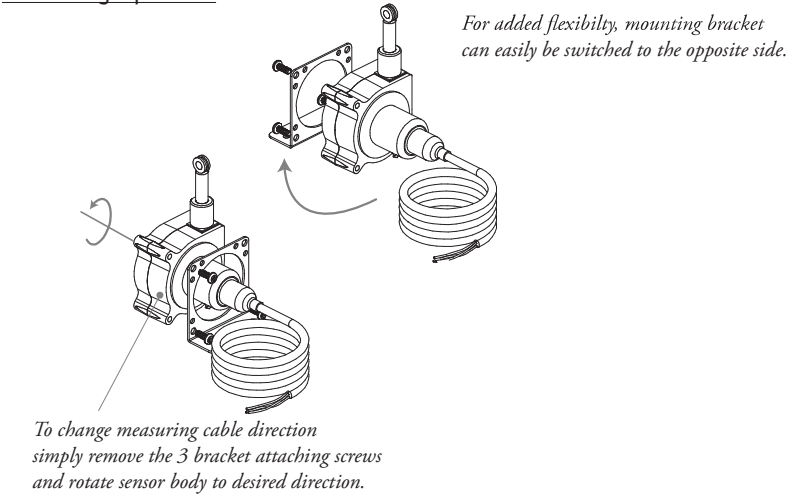
The SP2 String Pot from Celesco is a compact, economical and water resistant device that utilizes a flexible cable, a spring-loaded spool and a potentiometer to detect and measure linear position.

The SP2 is identical to the SP1 except for an added 40-inch electrical cable with a watertight rubber strain relief. The SP2 has been compactly designed for tight spaces and high cycle applications and generously allows for measuring cable misalignment. With 4 different ranges and a handy mounting bracket, the SP2 is a perfect solution for many applications from light industrial to OEM.

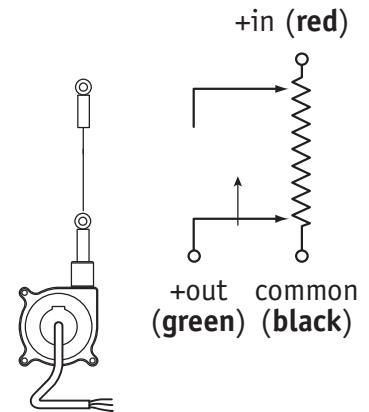
Output Signal:



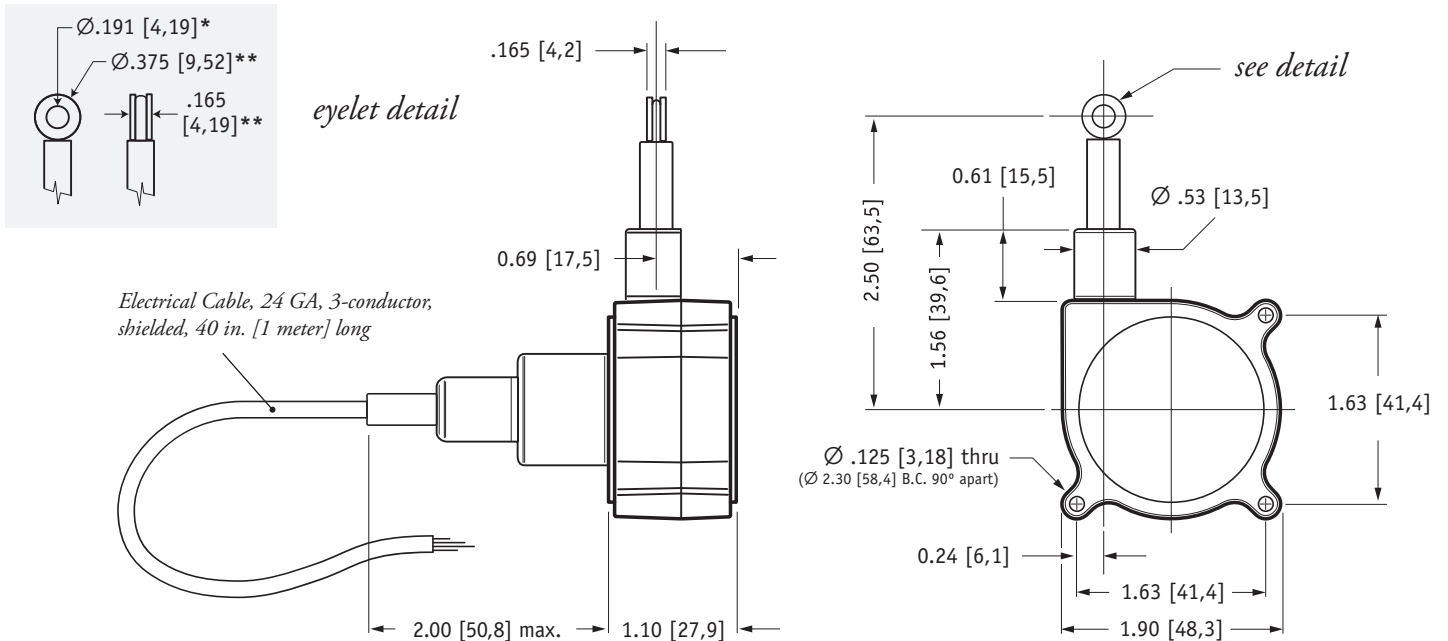
Mounting Options:



Electrical Connection:



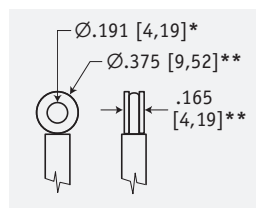
Outline Drawing (w/o bracket):



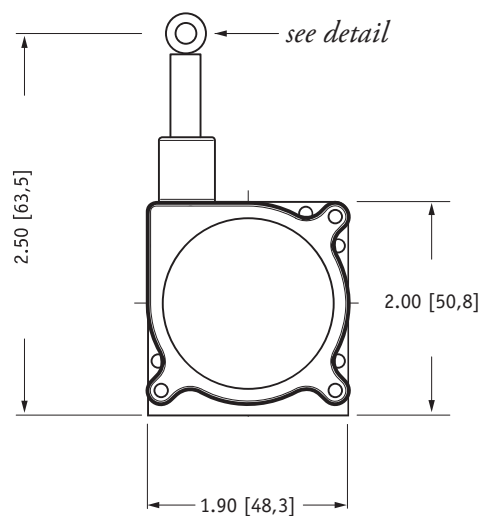
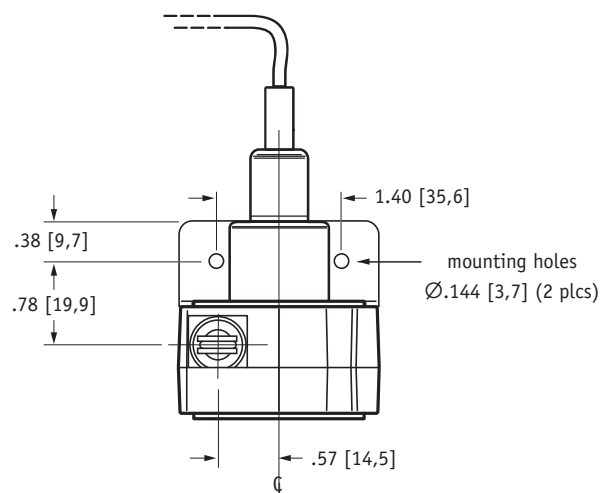
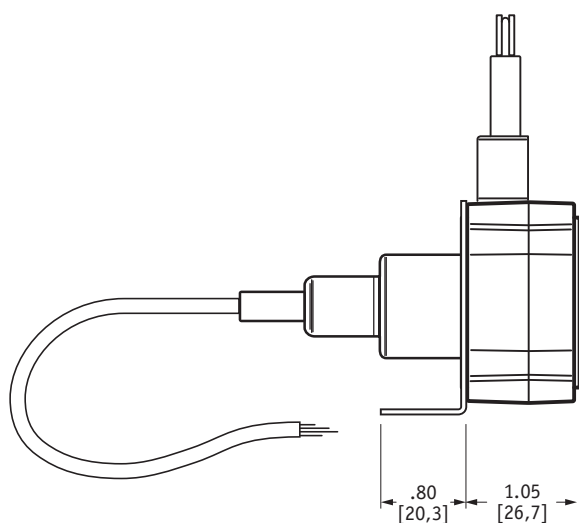
DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.04 IN. [1,0 MM] unless otherwise noted.

* tolerance = +.005 -.001 [+0,1 -0,0]
** tolerance = +.005 -.005 [+0,1 -0,1]

Outline Drawing (with bracket):



eyelet detail



DIMENSIONS ARE IN INCHES [MM]
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* tolerance = +.005 - .001 [+0,1 -0,0]
** tolerance = +.005 - .005 [+0,1 -0,1]

version: **6.0** last updated: **February 26, 2013**

SP3

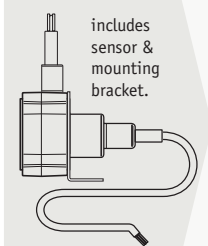
Compact String Pot • 4..20mA / 0..10Vdc

Linear Position to 50 inches (1270 mm)

User Selectable Output: 4–20 mA or 0–10Vdc

40-in. Electrical Cable • Free-Release Tolerant

In Stock for Quick Delivery!

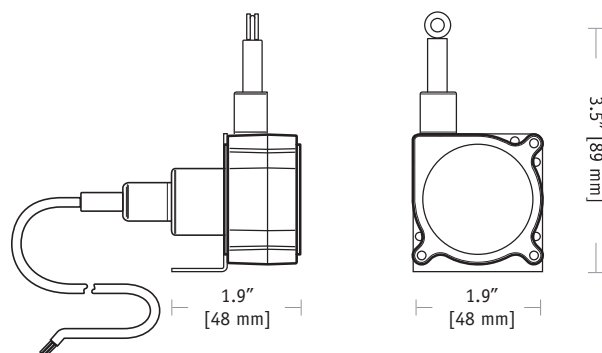
	Part No.	full stroke range	accuracy (% of f.s.)	cycle life
 includes sensor & mounting bracket.	SP3-4	4.75 in (120 mm)	1.00%	2.5M cycles
	SP3-12	12.5 in (317 mm)	0.25%	500K cycles
	SP3-25	25 in (635 mm)	0.25%	500K cycles
	SP3-50	50 in (1270 mm)	0.25%	250K cycles

COMPLETE SPECIFICATIONS

Full Stroke Range Options	0-4.75, 0-12.5, 0-25, 0-50 inches
User Selectable Output Signal	4...20 mA (2-wire) / 0...10 Vdc
Input Voltage, 4...20 mA option	8-40 VDC
Input Voltage, 0...10 Vdc option	12-32 VDC
Accuracy	±0.25 to ±1.00% (see part no. above)
Repeatability	± 0.05% full stroke
Resolution	essentially infinite
Measuring Cable	0.019-in. dia. nylon-coated stainless steel
Measuring Cable Tension	7 oz. (1.9 N) ±25%
Maximum Cable Acceleration	15 g
Enclosure Material	polycarbonate
Sensor	plastic-hybrid precision potentiometer
Electrical Connection	40-inch long, 24 guage shielded electrical cable
Weight	5 oz. (w/o mounting bracket) max.

ENVIRONMENTAL

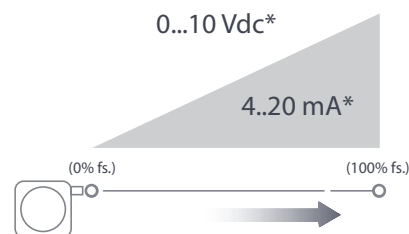
Enclosure	IP 50
Operating Temperature	0° to 160°F (-18° to 71°C)
Vibration	up to 10 g to 2000 Hz maximum



The SP3 from Celesco is a compact, economical stringpot that provides a user selectable 4-20 mA or 0-10 Vdc output signal. Simply install this sensor using the handy mounting bracket and connect the appropriate wires for the desired output.

The SP3 is constructed with a rugged, water resistant polycarbonate body that has been compactly designed for tight spaces and generous measuring cable misalignment. With 4 different ranges, the SP3 is a perfect solution for many applications from light industrial to OEM. Just like all of our other SP and SE models, the SP3 is in stock ready to ship.

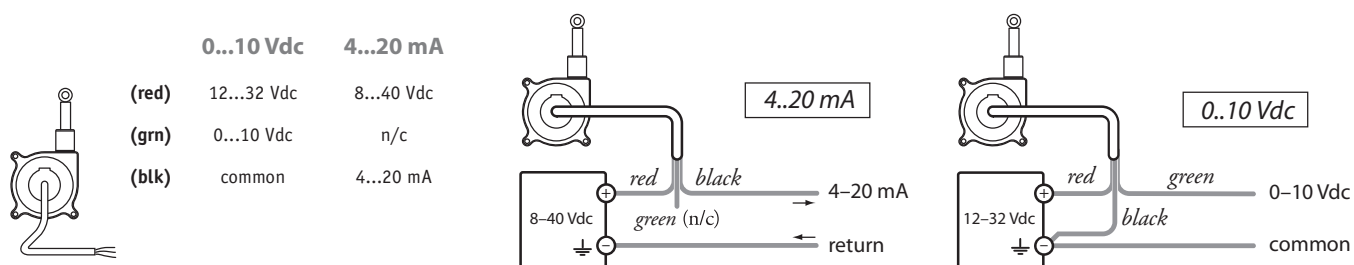
Output Signal:



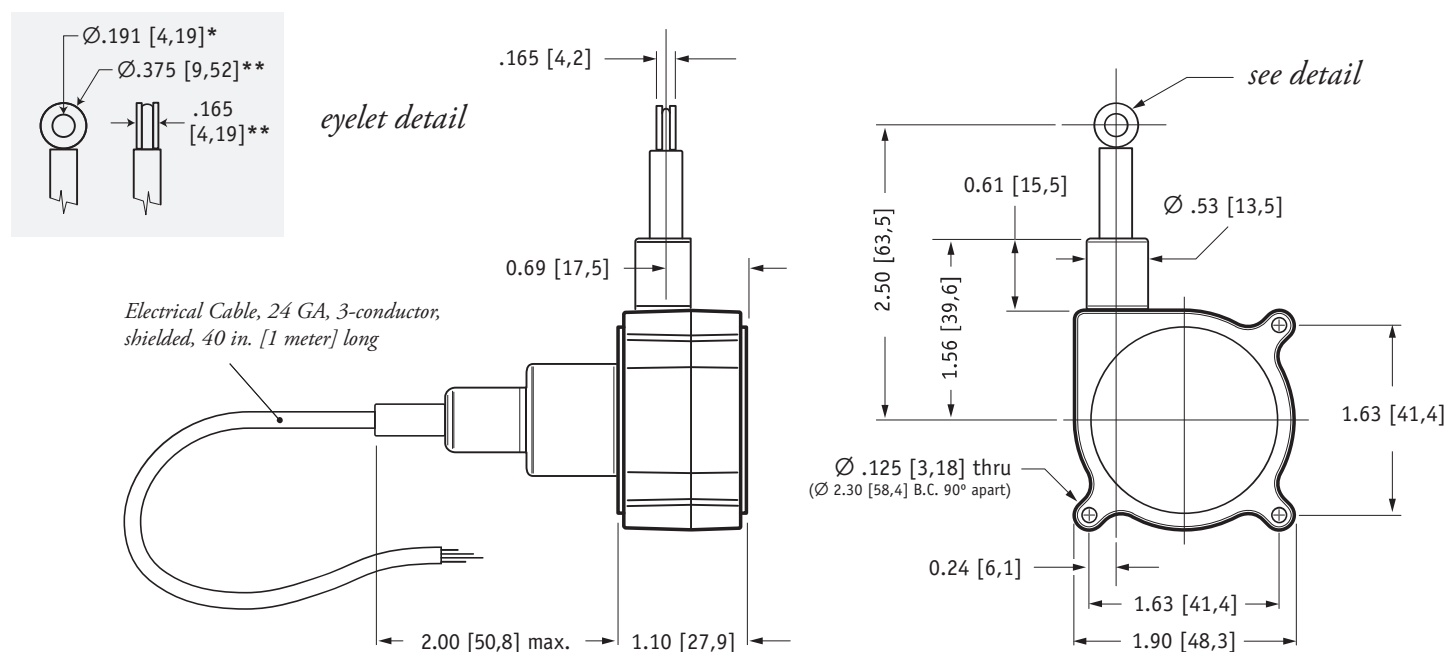
*note: output signal endpoint tolerance

Output Signal	0% fs.	100% fs.
4...20 mA	4 – 4.25 mA	19.2 – 20 mA
0...10 Vdc	0 – .2 Vdc	9.5 – 10 Vdc

Electrical Connection:



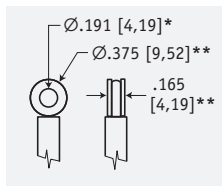
Outline Drawing (w/o bracket):



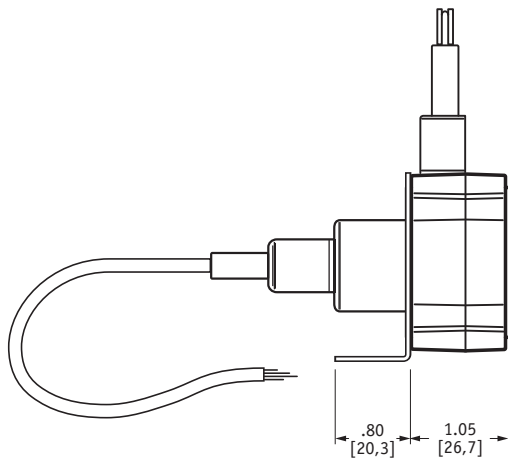
DIMENSIONS ARE IN INCHES [MM]
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** tolerance = +.005 - .005 [+0,1 -0,1]

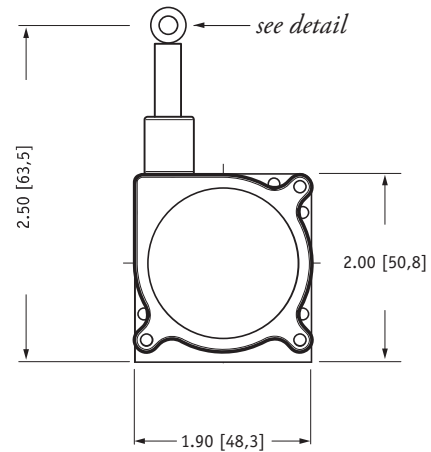
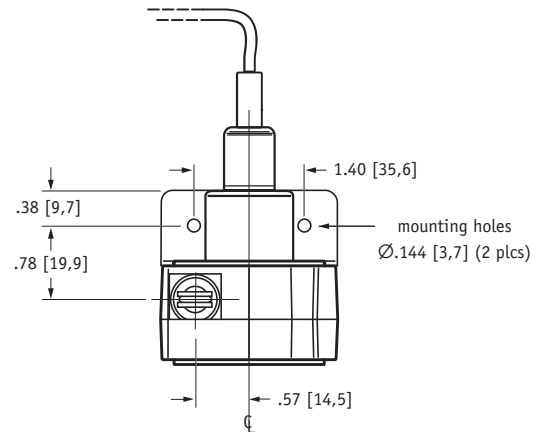
Outline Drawing (with bracket):



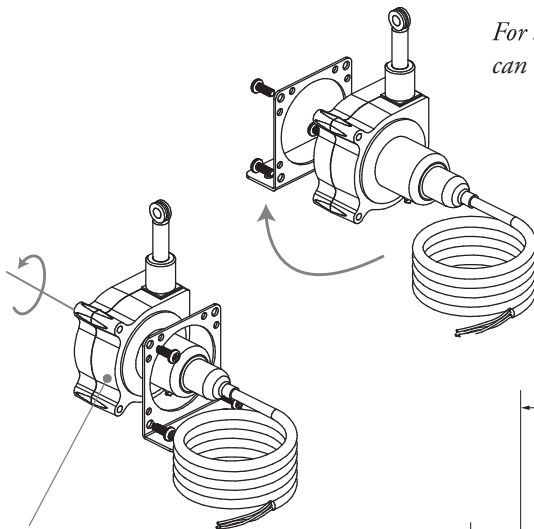
eyelet detail



DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.04 IN. [1,0 MM] unless otherwise noted.

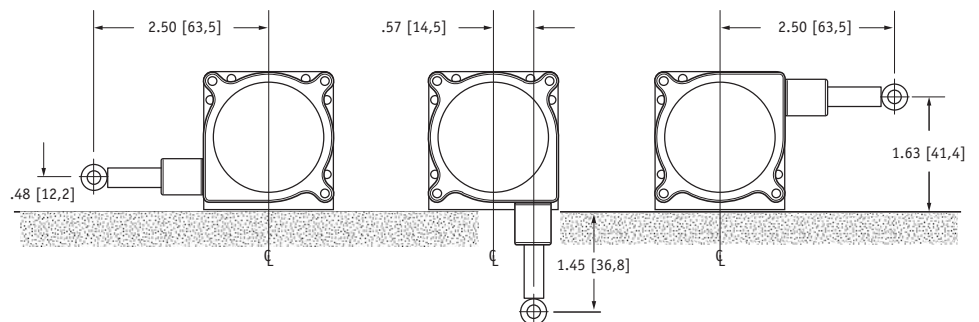


* tolerance = +.005 - .001 [+0,1 -0,0]
** tolerance = +.005 - .005 [+0,1 -0,1]



*For added flexibility, mounting bracket
can easily be switched to the opposite side.*

*To change measuring cable direction
simply remove the 3 bracket attaching screws
and rotate sensor body to desired direction.*



version: 6.0 last updated: February 26, 2013

SPD

Compact, High-Performance • Dual Output to 50"

Comes With Both 4...20mA and 0...10V Output

Rugged IP67 Polycarbonate Enclosure

Mounting Bracket & Sensor Cover Adjusts for Easy Installation

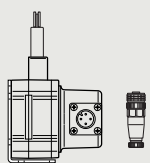
IN STOCK for Quick Delivery!

SPECIFICATIONS

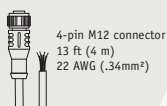
Full Stroke Range Options	0-4.75 to 0-50 inches
User Selectable Output Signal	4...20 mA (2-wire) / 0...10 Vdc
Input Voltage, 4...20 mA option	8-40 VDC
Input Voltage, 0...10 Vdc option	12-32 VDC
Accuracy	see ordering information
Repeatability	.05% FS.
Resolution	essentially infinite
Measuring Cable	.019-inch dia. nylon-coated stainless steel
Maximum Acceleration	13 g
Measuring Cable Tension	7 oz. (1.9 N) \pm 30%
Sensor	plastic-hybrid precision potentiometer
Cycle Life	see ordering information
Electrical Connection	M12 connector (mating plug included)
Enclosure	glass-filled polycarbonate
Environmental	IP 67
Operating Temperature	-40° to 160° F (-40° to 70° C)
Weight (includes sensor, bracket and connector)	.4 lbs (.19 kg)

ORDERING INFORMATION

Part No.	full stroke range	accuracy (% of f.s.)	cycle life
SPD-4-3	4.75 in (120 mm)	1.00%	2.5M cycles
SPD-12-3	12.5 in (317 mm)	0.25%	500K cycles
SPD-25-3	25 in (635 mm)	0.25%	500K cycles
SPD-50-3	50 in (1270 mm)	0.25%	250K cycles



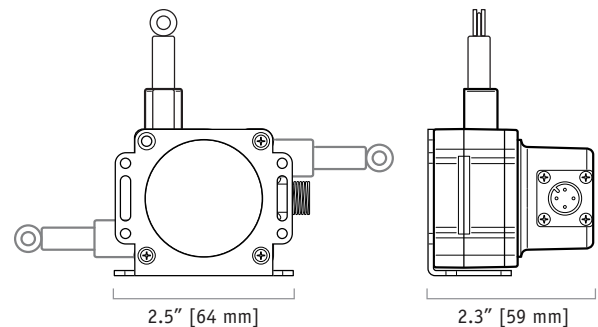
includes sensor, mounting bracket & mating connector.



Optional Cordset

9036810-0040

for short-run connections, a convenient optional 13-ft. cordset with a 4-pin M12 connector is available.

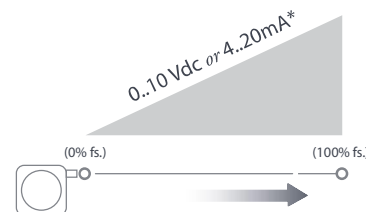


This compact stringpot provides the ultimate in ease-of-use and flexibility. This sensor fits in small spaces, doesn't need perfect alignment, mounts in just about any direction imaginable and has a unique circuit that lets the user choose 4-20mA or 0-10Vdc output on the fly.

The SPD comes in 4 different stroke ranges up to 50 inches and is constructed with a rugged polycarbonate body sealed against IP67 (wet) environments for both indoor and outdoor applications. Every unit ships with a stainless steel mounting bracket that lets the user easily point the measuring cable in the direction needed.

High value and economical price makes this sensor the perfect choice for the OEM and single-piece user alike. Customer specific designs available for the OEM, please contact factory for more information.

Output Signal:



signal endpoint tolerances		
Output Signal*	0% fs.	100% fs.
4...20 mA	4 - 4.25 mA	19.2 - 20 mA
0...10 Vdc	0 - .2 Vdc	9.5 - 10 Vdc

*note: signal endpoints are set at the time of manufacture and cannot be adjusted

20630 Plummer Street • Chatsworth, CA 91311
tel: 800.423.5483 • +1.818.701.2750 • fax: +1.818.701.2799

measurement
SPECIALTIES™

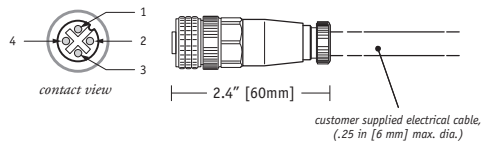
celesco
celesco.com • info@celesco.com

Electrical Connection:

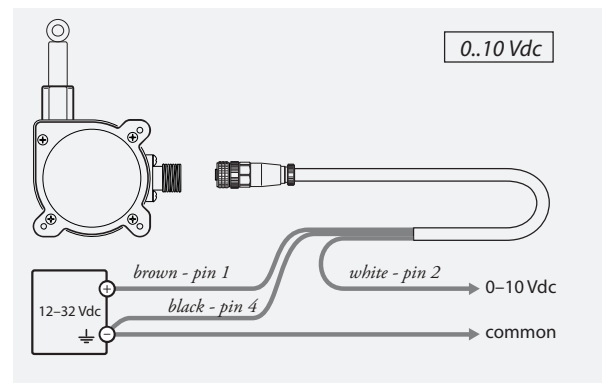
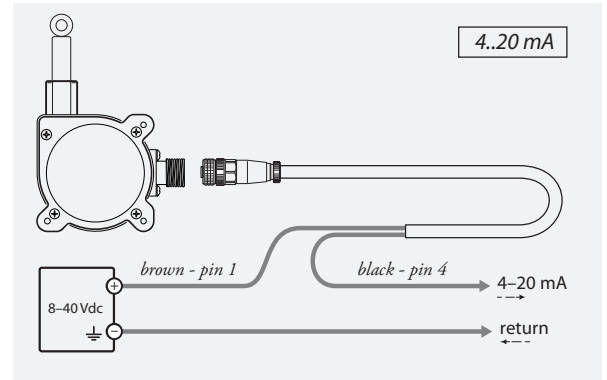
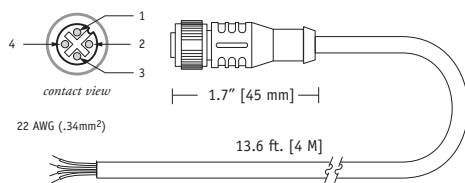
Output Signals

0...10 Vdc	4...20 mA	pin	pin - colorcode
12...32 Vdc	8...40 Vdc	1	1 - brown
0...10 Vdc	n/c	2	2 - white
n/c	n/c	3	3 - blue
common	4...20 mA	4	4 - black

field installable connector (included)



cordset, part no. 9036810-0040 (optional)



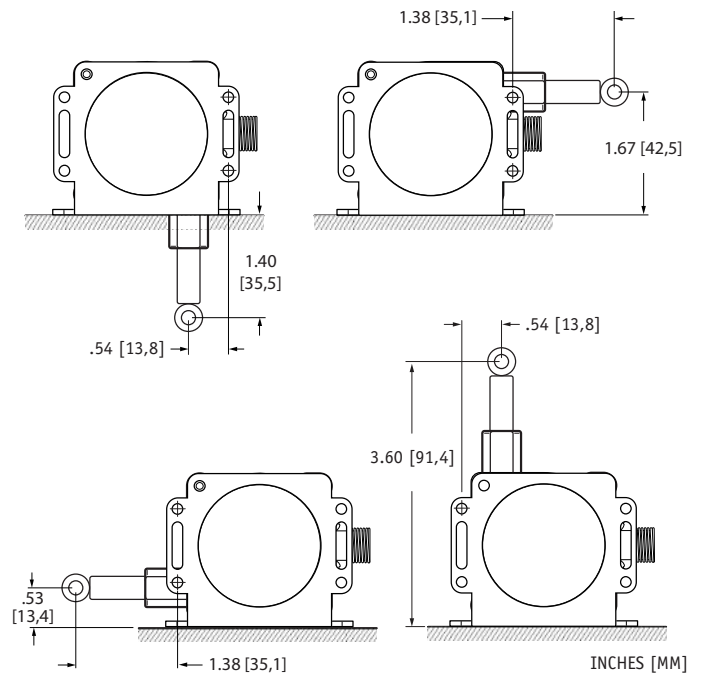
Mounting Options:

mounting bracket and attaching screws

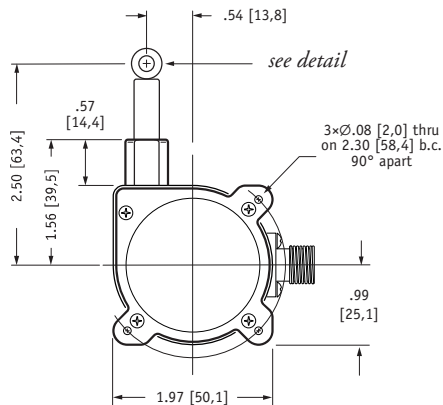
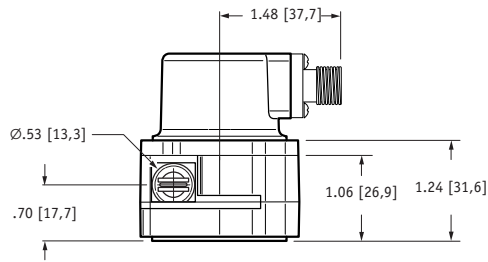
sensor cover and screws

To change measuring cable direction simply remove the 3 bracket attaching screws and rotate sensor body to desired direction.

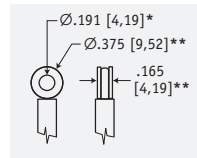
Connector orientation can be changed to 1 of 4 positions. Simply remove the 4 cover screws and rotate cover and replace screws.



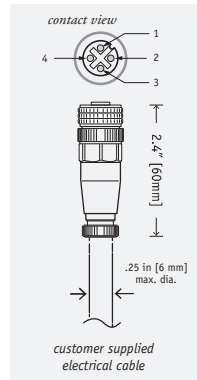
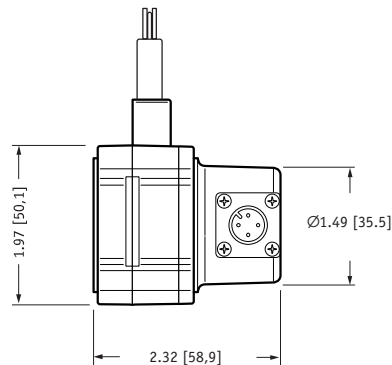
SPD-xx-3 w/o Mounting Bracket:



eyelet detail



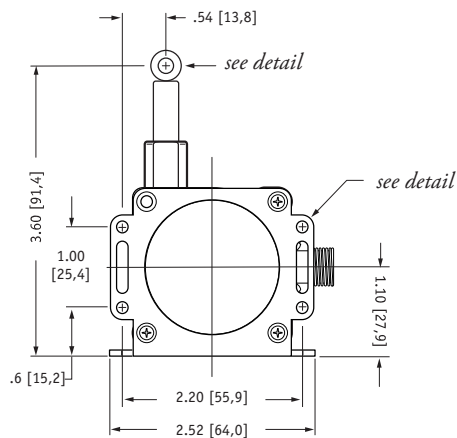
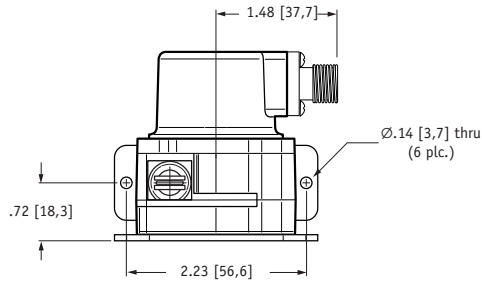
mating plug (included)



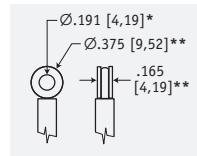
DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.04 IN. [1,0 MM] unless otherwise noted.

* tolerance = +.005 -.001 [+0,1 -0,0]
** tolerance = +.005 -.005 [+0,1 -0,1]

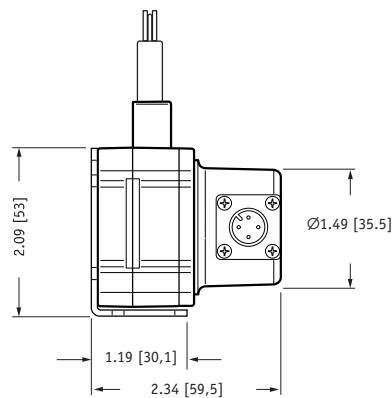
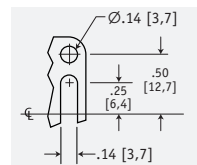
SPD-xx-3 w/ Mounting Bracket:



eyelet detail



bracket detail



DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.04 IN. [1,0 MM] unless otherwise noted.

* tolerance = +.005 -.001 [+0,1 -0,0]
** tolerance = +.005 -.005 [+0,1 -0,1]

SE1

Compact String Pot • Incremental Encoder

Linear Position to 50 inches (1270 mm)

Low-Cost, Long Life • Rugged Polycarbonate Enclosure

Free-Release Tolerant Measuring Cable

In Stock for Quick Delivery!

Part No.	full stroke range	accuracy	cycle life
SE1-25	25 in (635 mm)	0.050 in.	1.1M cycles
SE1-50	50 in (1270 mm)	0.050 in.	1.1M cycles

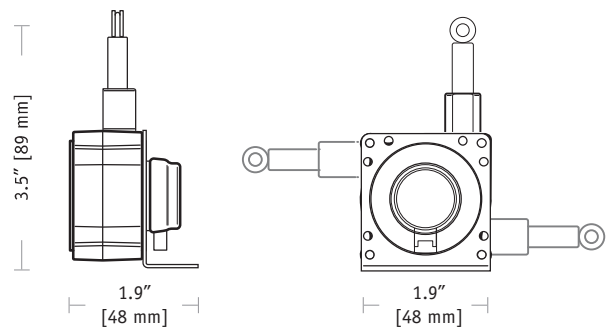
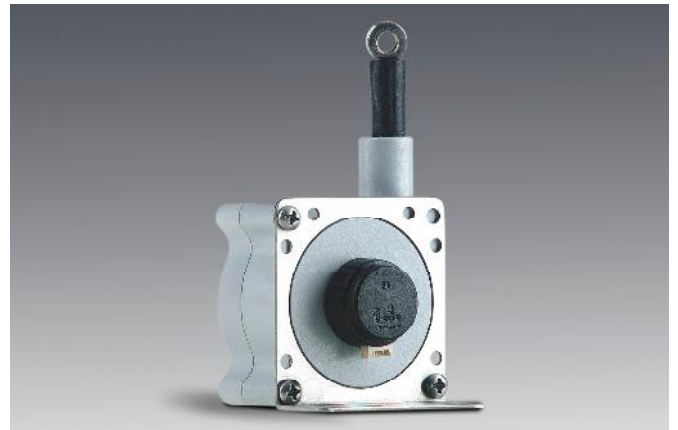
includes sensor, mounting bracket & conn. w/12-inch leads

COMPLETE SPECIFICATIONS

Full Stroke Range Options	0-25, 0-50 inches
Output Signal	incremental encoder (quadrature)
Accuracy	±0.050 inches
Repeatability	± 0.025 inches
Resolution	56.40 ±.32 pulses per inch
Measuring Cable	0.019-in. dia. nylon-coated stainless steel
Measuring Cable Tension	7 oz. (1.9 N) ±25%
Maximum Cable Acceleration	15 g
Enclosure Material	polycarbonate
Sensor	optical encoder
Cycle Life	1.1 million cycles
Enclosure	IP 50
Operating Temperature	14° to 185°F (-10° to 85°C)
Vibration	up to 10 g to 2000 Hz max.
Weight	5 oz. (w/o mounting bracket) max.

ELECTRICAL

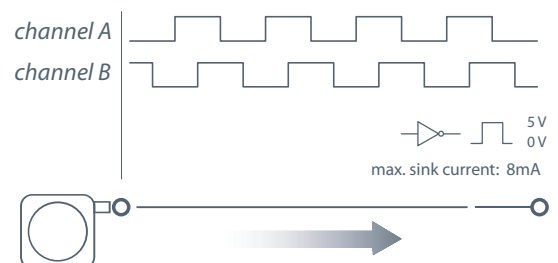
Input Voltage	5 VDC
Input Current	50 mA max.
Output Driver	TTL compatible
Sink Current	8 mA max.
Electrical Connection	mating plug with 12-inch leads, included
Electrical Connector	Molex 53048-0410
Mating Plug	Molex 51021-0400 (shell), 50079-8100 (pins)



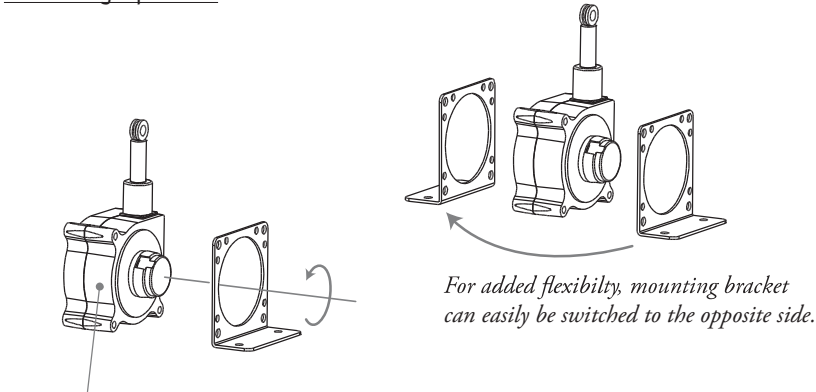
The Celesco SE1 is the digital encoder version of our compact String Pot series. The SE1 is an economical and durable device that utilizes a flexible cable, a spring-loaded spool and an incremental optical encoder to detect and measure linear position.

The SE1 is designed for tight spaces, high-cycle applications and generously allows cable misalignment. With a handy mounting bracket included, and 2 basic measurement ranges, the SE1 is a perfect solution for many applications, from light industrial to OEM.

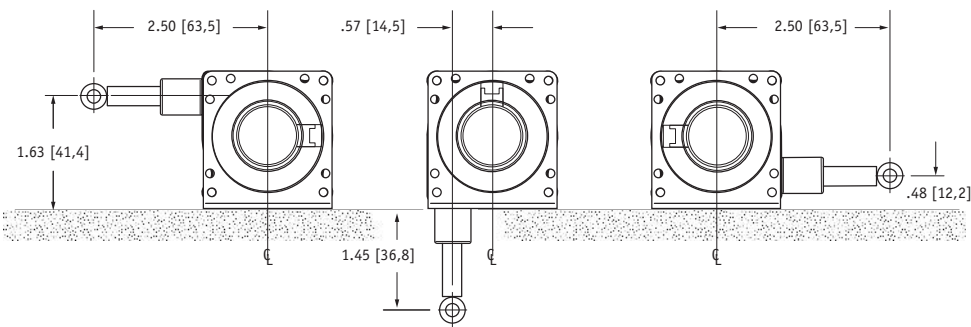
Output Signal:



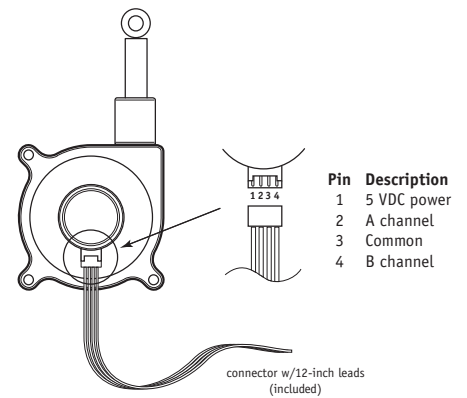
Mounting Options:



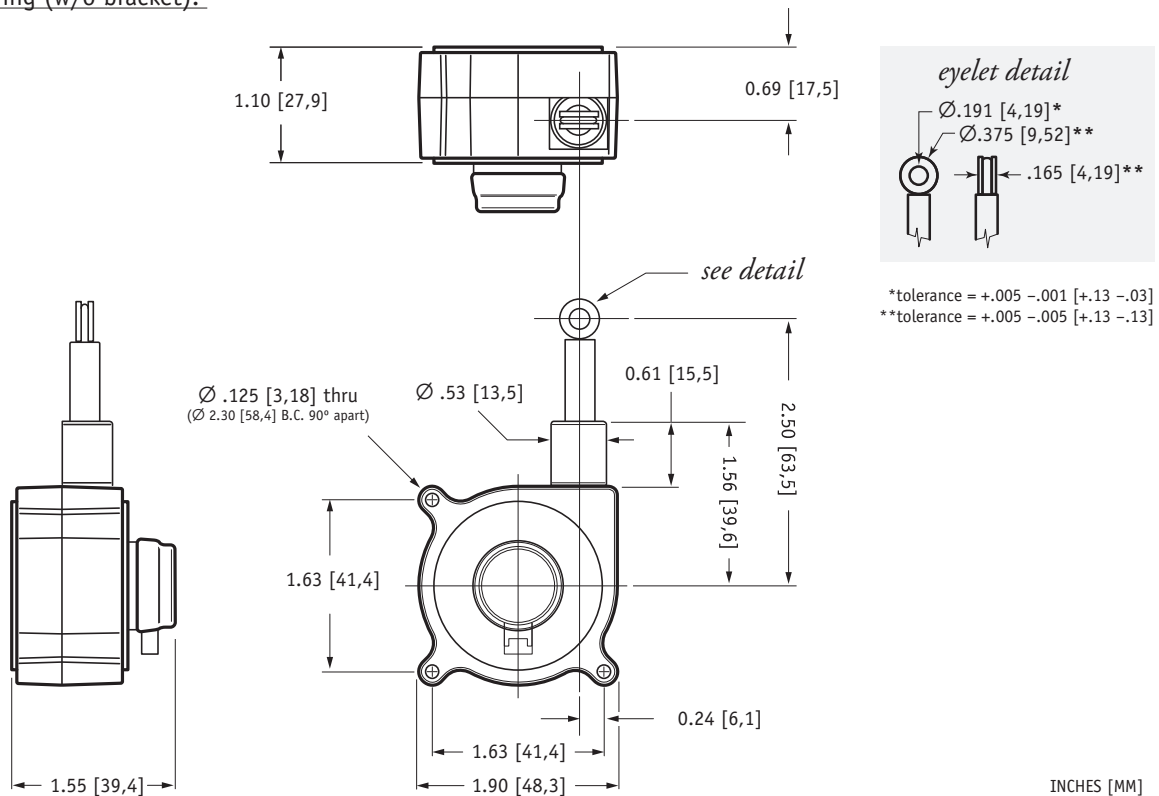
To change measuring cable direction simply remove the 3 bracket attaching screws and rotate sensor body to desired direction.



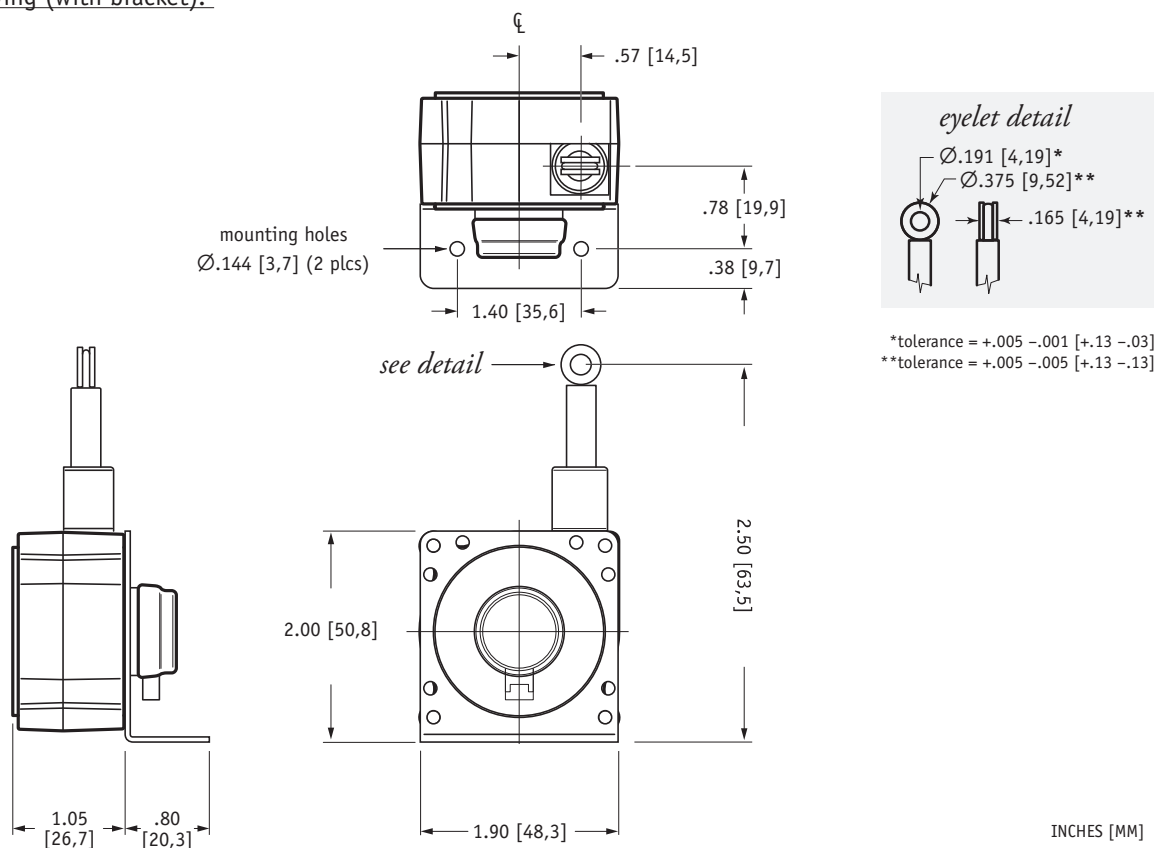
Electrical Connection:



Outline Drawing (w/o bracket):



Outline Drawing (with bracket):



version: 5.0 last updated: February 15, 2013