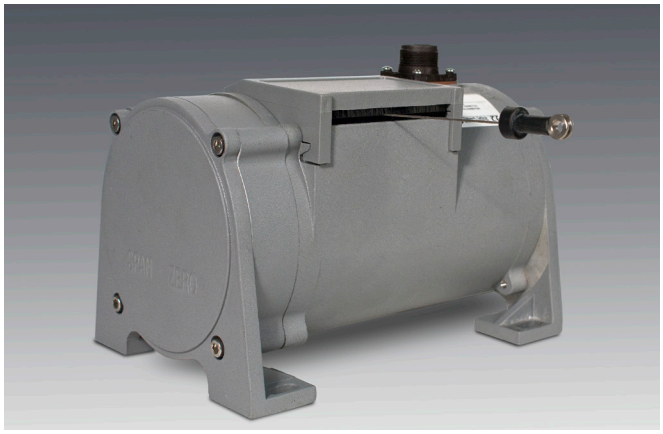
PT9150

Heavy Industrial • Incremental Encoder

Linear Position to 550 inches (1400 cm)
Aluminum or Stainless Steel Enclosure Options
VLS Option To Prevent Free-Release Damage
IP67 • NEMA 6 Protection



GENERAL

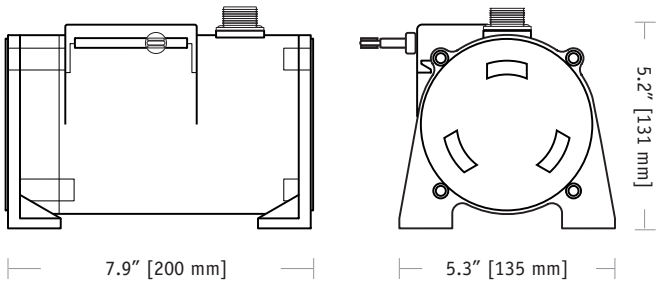
Full Stroke Range Options (on this datasheet)	0-75 to 0-550 inches
Output Signal Options	incremental encoder (quadrature)
Accuracy	0.04% full stroke (contact factory for higher accuracy)
Repeatability	± 0.02% full stroke ±1/2 pulse max.
Resolution Options	10 to 250 pulses per inch
Measuring Cable Options	stainless steel or thermoplastic
Enclosure Material	powder-painted aluminum or 303 stainless steel
Sensor	optical incremental encoder
Maximum Retraction Acceleration	see ordering information
Maximum Velocity	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	8 lbs. (16 lbs.) max.

ELECTRICAL

Input Voltage	see ordering information
Input Current	see ordering information

ENVIRONMENTAL

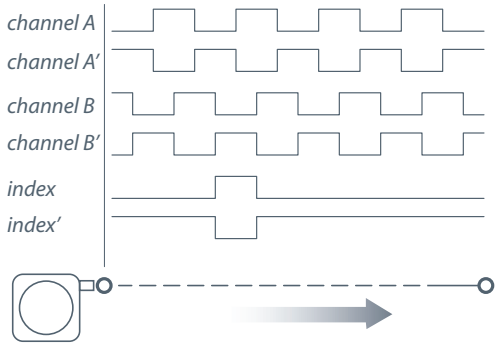
Enclosure	NEMA 4/4X/6, IP 67
Operating Temperature	0° to 160°F (-17° to 71°C)
Vibration	up to 10 g to 2000 Hz maximum



With its incremental optical encoder and industrial design this rugged transducer provides the highest accuracy and longest life of any measurement device of its kind. This model is available in a wide variety of resolutions and output stages to fit virtually any requirement.

It can measure up to 550", yet when its cable is retracted it is only 6" long. Its small size and low-cost-to-measurement ratio offers remarkable flexibility and value.

Output Signal:



-- see ordering information for available channels

20630 Plummer Street • Chatsworth, CA 91311
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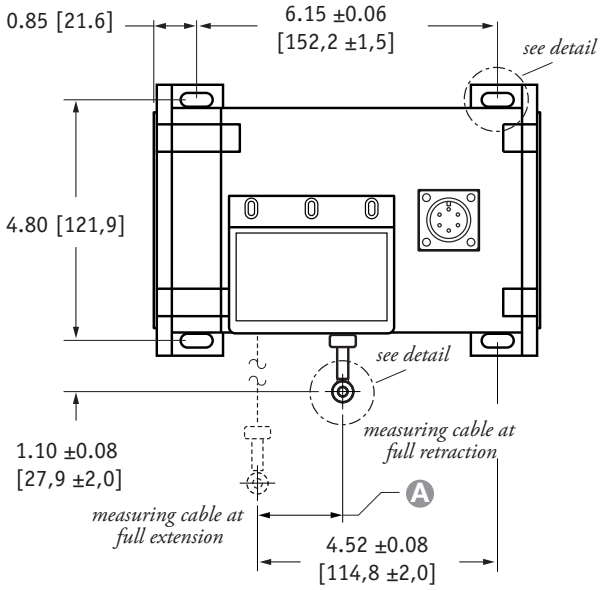
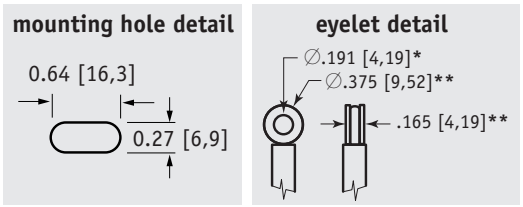
celesco.com • info@celesco.com

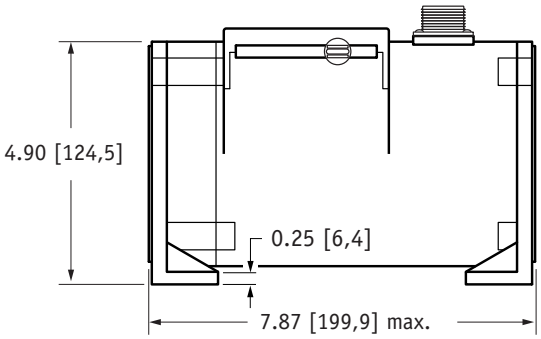
Fig. 1 – Outline Drawing (18 oz. cable tension only)

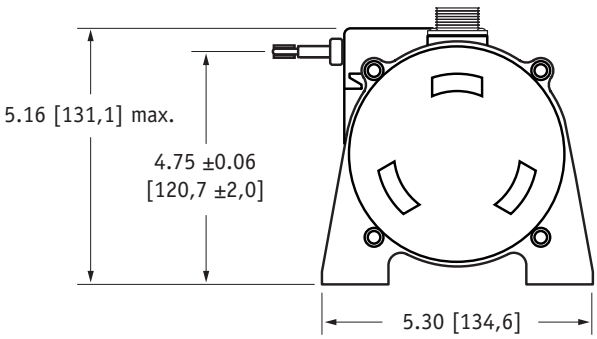




A DIMENSION (INCHES)

	MEASURING CABLE			
RANGE	**∅.031 in.**	**∅.034 in.**	**∅.047 in.**	**∅.062 in.**
75	n/a	0.22	0.29	0.37
100	n/a	0.29	0.39	0.49
150	n/a	0.44	0.59	0.73
200	n/a	0.58	0.79	0.98
250	n/a	0.73	0.98	1.22
300	n/a	0.88	1.18	1.47
350	n/a	1.02	1.38	1.71
400	n/a	1.17	1.57	1.96
450	n/a	1.31	1.77	n/a
500	n/a	1.46	1.97	n/a
550	1.61	1.61	n/a	n/a





DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

* tolerance = +.005 –.001 [+.13 –.03]
** tolerance = +.005 –.005 [+.13 –.13]

Ordering Information:

Model Number:

PT9150- _____ **-** ___ ___ ___ **-** ___ ___ ___ **0**
order code: Ⓡ Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ

Sample Model Number:
PT9150 - 0500 - 111 - 1110

Ⓡ	range:	500 inches
Ⓐ	enclosure/cable tension:	aluminum/18 oz.
Ⓑ	measuring cable:	.034 nylon-coated stainless
Ⓒ	cable exit:	front
Ⓓ	output signal:	TTL/CMOS driver
Ⓔ	resolution:	100 ±2 pulses per inch
Ⓕ	electrical connection:	6-pin plastic connector

Full Stroke Range:

english ranges

Ⓡ order code:	0075	0100	0150	0200	0250	0300	0350	0400	0450*	0500*	0550*
full stroke range, min:	75 in.	100 in.	150 in.	200 in.	250 in.	300 in.	350 in.	400 in.	450 in.	500 in.	550 in.

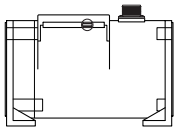
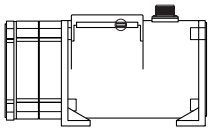
metric ranges

Ⓡ order code:	2500	3750	5000	6250	7500	8750	10000	11250	12500*	13750*
full stroke range, min:	2500 mm	3750 mm	5000 mm	6250 mm	7500 mm	8750 mm	10000 mm	11250 mm	12500 mm	13750 mm

** – 36 oz. cable tension strongly recommended*

Ordering Information (cont.):

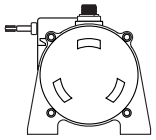
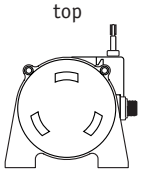
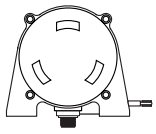
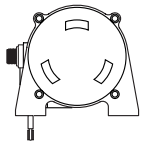
Enclosure Material and Measuring Cable Tension:

Ⓐ order code:	1	3	2	4
tension (±30%):	18 oz.		36 oz.	
enclosure material:	*powder-painted aluminum*	*303 stainless steel*	*powder-painted aluminum*	*303 stainless steel*
max. acceleration:	1 G	.33 G	5 G	2 G
max. velocity:	60 inches/sec	20 inches/sec	200 inches/sec	80 inches/sec
		standard housing *see fig 1.*		dual-spring housing *see fig 2.*

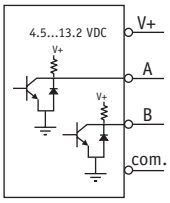
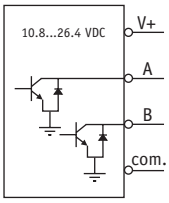
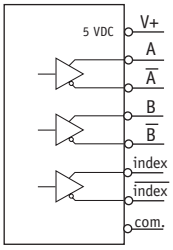
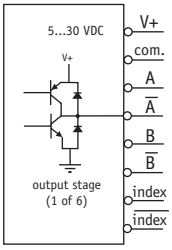
Measuring Cable:

Ⓑ order code:	1	2	3	4
	∅.034-inch nylon-coated stainless steel	∅.047-inch stainless steel	∅.062-inch thermoplastic	∅.031-inch stainless steel
	*available in **all** ranges*	*all ranges up to **500 inches***	*all ranges up to **400 inches***	***550 inch** range only*

Cable Exit:

Ⓒ order code:	1	2	3	4
	front	top	back	down
				

Output Signals:

Ⓓ order code:	1	2	3	4
output driver:	TTL - CMOS	Open Collector	5 V - Line Driver	Universal Line Driver
	Input voltage (V+): 4.5...13.2 Vdc Sink current: 20 mA max. Input current: 80 mA max.	Input voltage (V+): 10.8...26.4 Vdc Sink current: 20 mA max. Input current: 80 mA max.	Input voltage (V+): 5 Vdc Sink current: 20 mA max. Input current: 150 mA max.	Input voltage (V+): 5...30 VDC Source/Sink: 20 mA max. Input current: 100 mA max, no load
				

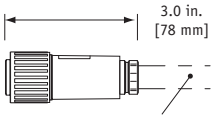
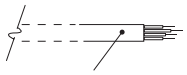
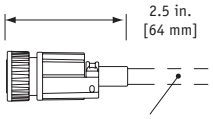
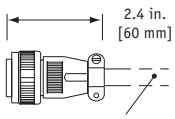
Resolution:

Ⓔ order code:	1	2	3	4
english ranges:	100 ±2 pulses per in.	200 ±4 pulses per in.	250 ±5 pulses per in.	10 ±0.2 pulses per in.
metric ranges:	5 ±0,1 pulses per mm	10 ±0,2 pulses per mm	12,5 ±0,25 pulses per mm	0,5 ±0,01 pulses per mm

Ordering Information (cont.):

Electrical Connection:

Ⓕ *order code:*

1	2	3	4
6-pin plastic connector with mating plug **IP 67, NEMA 4X*,6**	25-ft. instrumentation cable 24 AWG, shielded **IP 67, NEMA 6**	18-pin plastic connector with mating plug **IP 65, NEMA 4**	6-pin metal connector with mating plug **IP 67, NEMA 6**
			
.30 – .39 in. [8 – 10 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	25 ft. x 0.2-in. dia. [7,5 M x 5 mm dia.] 24 AWG, shielded	.26 – .30 in. [6,6 – 7,6 mm] cable dia. 20 – 24 AWG conductor size connector: Conxall 14282-18PG-300-K mating plug: Conxall 13282-18SG-326-K	3/8-in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S

6-pin mating plug:

pin	TTL/CMOS Open Collector	5 V Line Driver Universal Line Driver
A	input voltage	input voltage
B	common	common
C	channel A	channel A
D	channel B	channel B
E	-	channel A'
F	-	channel B'

contact view

18-pin mating plug:

pin	TTL/CMOS Open Collector	5 V Line Driver Universal Line Driver
1	input voltage	input voltage
2	common	common
3	channel B	channel B
6	channel A	channel A
7	-	index
11	-	channel B'
12	-	channel A'
15	-	index'

contact view

25-ft. instrumentation cable:

color	TTL/CMOS Open Collector	5 V Line Driver Universal Line Driver
red	input voltage	input voltage
black	common	common
green	channel A	channel A
white	channel B	channel B
blue	-	channel A'
brown	-	channel B'
yellow	-	index
orange	-	index'

** –applies to stainless steel enclosure only.*

VLS Option - Free Release Protection

The patented Celesco Velocity Limiting System (VLS) is an option for PT9000 Series cable extension transducers that limits cable retraction to a safe 40 to 55 inches per second for the single spring option and 40 to 80 inches per second for the higher tension dual spring option.

The VLS option prevents the measuring cable from ever reaching a damaging velocity during an accidental free release. This option is ideal for mobile applications that require frequent cable disconnection and reconnection. It prevents expensive unscheduled downtime due to accidental cable mishandling or attachment failure.

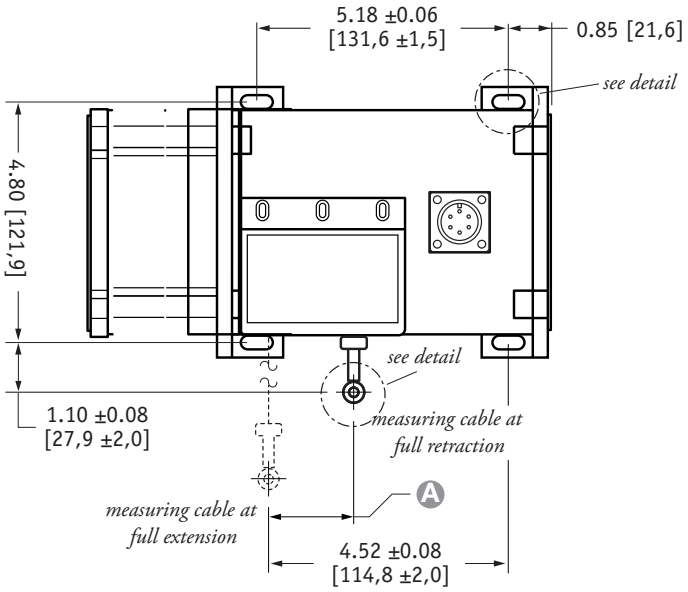
How To Configure Model Number for VLS Option:

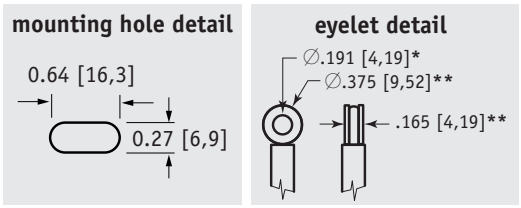
VLS9150 - ____ Ⓡ **-** ____ Ⓐ ____ Ⓑ ____ Ⓒ **-** ____ Ⓓ ____ Ⓔ ____ Ⓕ ____ Ⓖ

creating VLS model number (example)...

1. select PT9510 model — **PT9150-0100-111-1110**
2. remove "PT" from the model number — ~~PT~~ **9150-0100-111-1110**
3. add "VLS" — **VLS + 9150-0100-111-1110**
4. completed model number ! — **VLS9150-0100-111-1110**

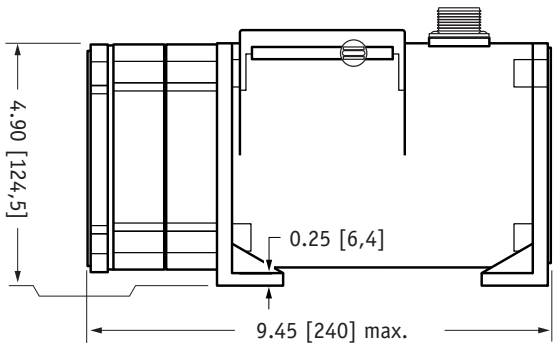
Fig. 2 – Outline Drawing (36 oz. cable tension only)

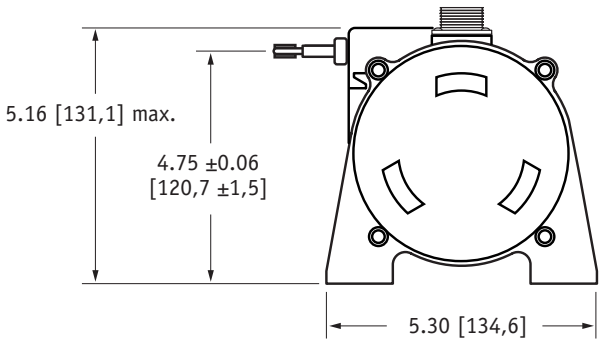




A DIMENSION (INCHES)

	MEASURING CABLE			
RANGE	**∅.031 in.**	**∅.034 in.**	**∅.047 in.**	**∅.062 in.**
75	n/a	0.22	0.29	0.37
100	n/a	0.29	0.39	0.49
150	n/a	0.44	0.59	0.73
200	n/a	0.58	0.79	0.98
250	n/a	0.73	0.98	1.22
300	n/a	0.88	1.18	1.47
350	n/a	1.02	1.38	1.71
400	n/a	1.17	1.57	1.96
450	n/a	1.31	1.77	n/a
500	n/a	1.46	1.97	n/a
550	1.61	1.61	n/a	n/a





DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

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