

# Cable-Extension Position Transducer

- ▼ Medium to Long Range
- ▼ Industrial Grade
- ▼ Incremental Encoder Output

# PT9150



## Specifications:

### GENERAL

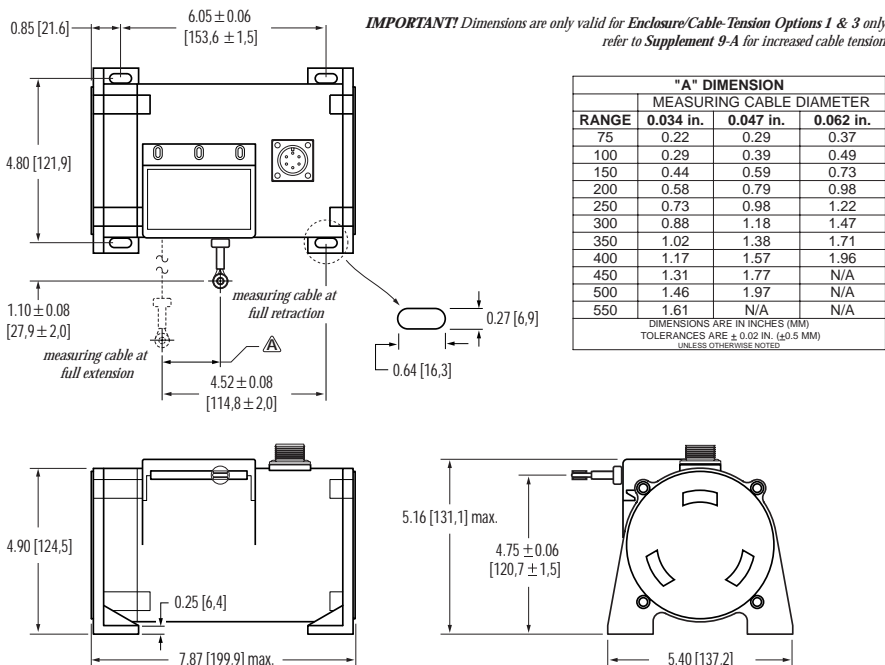
Full Stroke Ranges—on this data sheet ..... 0-75 to 0-550 inches, see ① next page  
 Output Signal ..... incremental encoder (quadrature) signal  
 Output Driver ..... TTL/CMOS, open collector or line driver, see ⑦  
 Accuracy  
 Typical ..... the lesser of 0.02% f.s. or 0.04% of measurement  $\pm 1/2$  pulse max.  
 Best ..... not less than 0.001 in. (0.03 mm)  
 Repeatability ..... 0.02% of measurement  $\pm 1/2$  pulse max.  
 Resolution ..... 10 to 100 pulses per inch, see ⑧ and ⑨  
 Measuring Cable ..... stainless steel, nylon-coated or thermoplastic, see ⑥  
 Enclosure Material ..... powder-painted aluminum or stainless steel, see ②  
 Sensor ..... optical encoder  
 Maximum Retraction Acceleration ..... see ⑤  
 Maximum Velocity ..... see ④  
 Weight, Aluminum (Stainless Steel) Enclosure ..... 8 lbs. (16 lbs.), max.

### ENVIRONMENTAL

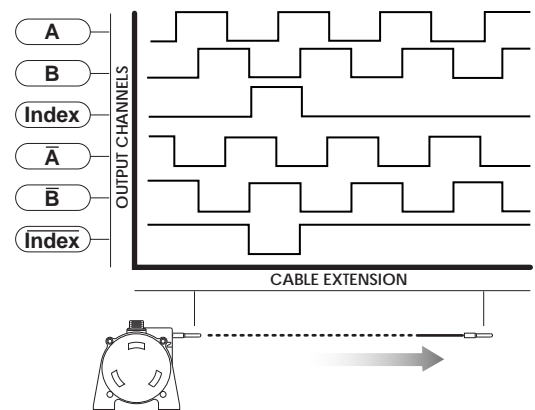
Enclosure Design ..... NEMA 4/4X/6, IP 65/67/68, see ⑩ and ⑪  
 Operating Temperature ..... 0° to 160°F  
 Vibration ..... up to 10 G's to 2000 Hz maximum

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 1700", 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.



## Electrical Output Signal:



Latin Tech, Inc.

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▼ Ordering Information

Model Number:

**PT9150-** \_\_\_\_\_ **0**  
 order code:                    **R**        **A**        **B**        **C**        **D**        **E**        **F**        **G**

Full Stroke Range:

①	english	Ⓡ order code:	<b>0075</b>	<b>0100</b>	<b>0150</b>	<b>0200</b>	<b>0250</b>	<b>0300</b>
		full stroke range, min:	75 inches	100 inches	150 inches	200 inches	250 inches	300 inches
		Ⓡ order code:	<b>0350</b>	<b>0400</b>	<b>0450*</b>	<b>0500*</b>	<b>0550*</b>	
		full stroke range, min:	350 inches	400 inches	450 inches	500 inches	550 inches	
	metric	Ⓡ order code:	<b>2500</b>	<b>3750</b>	<b>5000</b>	<b>6250</b>	<b>7500</b>	<b>8750</b>
		full stroke range, min:	2500 mm	3750 mm	5000 mm	6250 mm	7500 mm	8750 mm
		Ⓡ order code:	<b>10000</b>	<b>11250</b>	<b>12500*</b>	<b>13750*</b>		
		full stroke range, min:	10,000 mm	11,250 mm	12,500 mm	13,750 mm		

note: \*42 oz. cable tension (see ③ below) for these ranges is strongly recommended!

Enclosure Material and Measuring Cable Tension:

	Ⓐ order code:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
	enclosure:	see drawing (front page)	see Supplement 9-A	see drawing (front page)	see Supplement 9-A
②	enclosure material:	powder-painted aluminum		303 stainless steel	
③	cable tension (±30%):	26 oz.	42 oz.	26 oz.	42 oz.
④	maximum velocity:	60 inches per second	200 inches per second	20 inches per second	80 inches per second
⑤	max. retraction acceleration:	1 G	5 G's	0.33 G	2 G's

Measuring Cable:

	Ⓑ order code:	<b>1*</b>	<b>2**</b>	<b>3***</b>
⑥	cable construction:	.034 nylon-coated stainless steel	.047 stainless steel	.062 thermoplastic

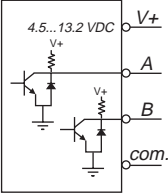
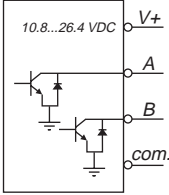
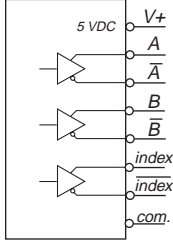
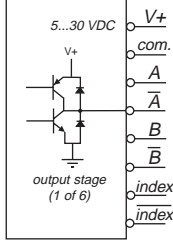
notes:                    \*available in all ranges                    \*\*available in ranges up to 500-inches only                    \*\*\*available in ranges up to 400-inches only

Cable Exit:

Ⓒ order code:	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
direction:	front	top	rear	bottom

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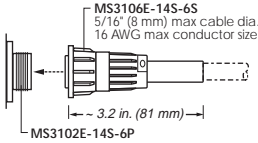
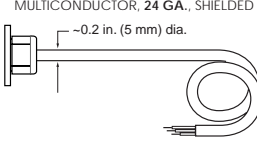
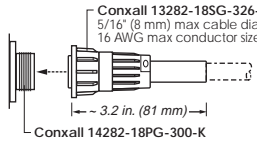
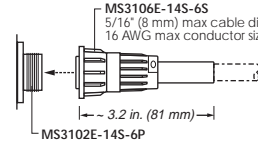
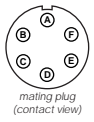
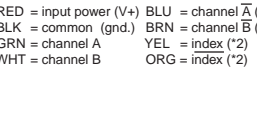
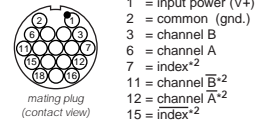
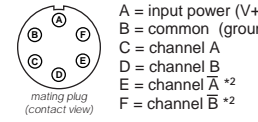
## Output Signals:

⑦	⑩ 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	10.8...26.4 Vdc	5 Vdc	5...30 VDC
	Sink current:	20 mA max.	20 mA max.	20 mA max.	20 mA max.
	Input current:	80 mA max.	80 mA max.	150 mA max.	100 mA max, no load
					

## Resolution:

	⑩ order code:	1	2	3	4
⑧ resolution for <b>english</b> ranges:		100 ±2 pulses per inch	200 ±4 pulses per inch	250 ±5 pulses per inch	10 ±0.2 pulses per inch
⑨ resolution for <b>metric</b> 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

## Electrical Connection:

	⑩ order code:	1 <sup>(*)</sup>	2	3	4 <sup>(*)</sup>
electrical connection:		6-pin plastic connector and mating plug	25 ft. instrumentation cable	18-pin plastic connector and mating plug	6-pin metal connector and mating plug
					
					
⑩ IP rating:		67	67, 68 <sup>(*)3</sup>	67	65
⑪ NEMA rating:		6, 4X <sup>(*)4</sup>	6, 4X <sup>(*)4</sup>	6	4

notes: \*1-6-pin connector not available when Index channels are required  
 \*2-no signal present when TTL-CMOS or Open Collector output drivers are selected

\*3-requires factory submersion test  
 \*4-applies to stainless steel enclosure, see ③

## ▼ Sample Model Number

**PT9150-0200** - 1 1 1 - 1 1 1 0  
order code: ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱

Specifications: Full Stroke Range: 200 inches  
 Enclosure Material: powder-painted aluminum  
 Measuring Cable: 0.034-in dia. nylon coated stainless steel cable  
 Cable Exit: front  
 Output Driver: TTL/CMOS, 4.5...13.2 VDC  
 Resolution: 98 - 102 pulses per inch  
 Electrical Connection: 6-pin plastic connector

**celesco**

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 www.celesco.com • info@celesco.com

- ▼ All High Acceleration Applications
- ▼ 450-550 inch Full Stroke Applications

**General:**

Celeco strongly recommends increased cable tension for:

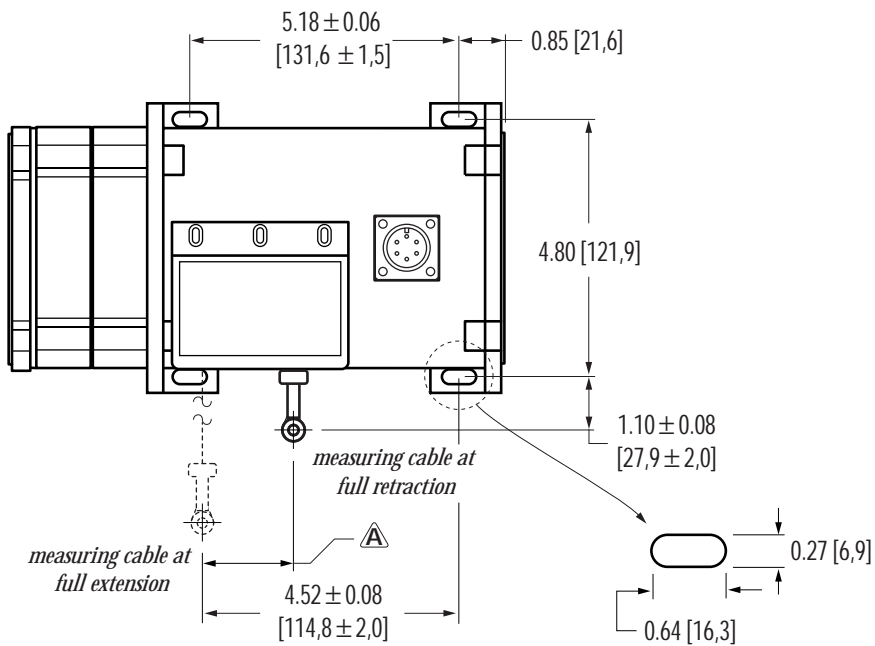
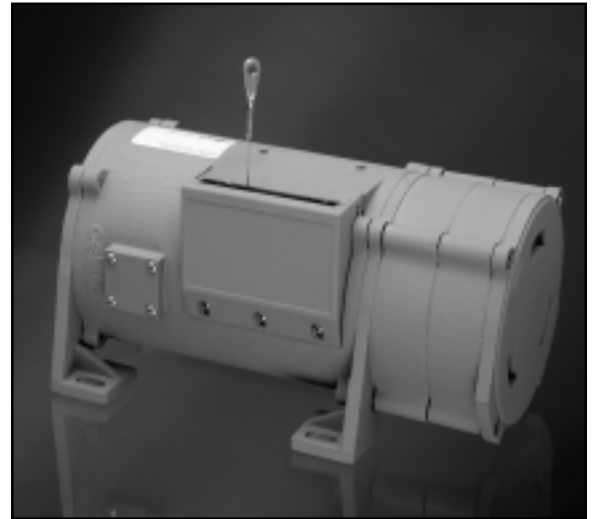
- Cable velocities greater than 60 inches per second
- Cable retraction accelerations exceeding:
  - 1 G (for aluminum enclosure)
  - 0.33 G (for stainless-steel enclosure)
- Applications with ranges 450 inches and greater to minimize cable sag and maintain dynamic capabilities.

**Transducer Models:**

PT9101	PT9150	PT9301
PT9420	PT9510	PT9600

**Available Ranges:**

75 to 550 inches



RANGE	"A" DIMENSION		
	MEASURING CABLE DIAMETER		
	0.034 in.	0.047 in.	0.062 in.
75	0.22	0.29	0.37
100	0.29	0.39	0.49
150	0.44	0.59	0.73
200	0.58	0.79	0.98
250	0.73	0.98	1.22
300	0.88	1.18	1.47
350	1.02	1.38	1.71
400	1.17	1.57	1.96
450	1.31	1.77	N/A
500	1.46	1.97	N/A
550	1.61	N/A	N/A

DIMENSIONS ARE IN INCHES (MM)  
TOLERANCES ARE ± 0.02 IN. (± 0.5 MM)  
UNLESS OTHERWISE NOTED

