PT8420

Heavy Industrial • 4..20mA / 0..20mA

Absolute Linear Position to 60 inches (1524 mm)
Aluminum or Stainless Steel Enclosure Options
VLS Option To Prevent Free-Release Damage
IP68 / NEMA 6 • Hazardous Area Certification



GENERAL

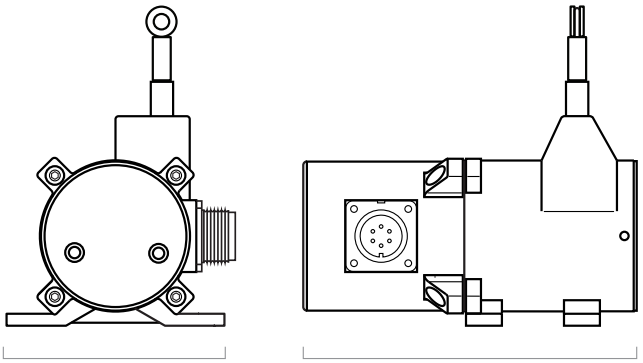
Full Stroke Range Options	0-2 to 0-60 inches
Output Signal Options	4...20 mA (2-wire) and 0...20 mA (3-wire)
Accuracy	see ordering information
Repeatability	± 0.05% full stroke
Resolution	essentially infinite
Measuring Cable Options	stainless steel or thermoplastic
Enclosure Material	powder-painted aluminum or stainless steel
Sensor	plastic-hybrid precision potentiometer
Potentiometer Cycle Life	see ordering information
Maximum Retraction Acceleration	see ordering information

ELECTRICAL

Input Voltage	see ordering information
Input Current	20 mA max.
Maximum Loop Resistance (Load)	(loop supply voltage - 8)/0.020
Circuit Protection	38 mA max.
Impedance	100M ohms@100 VDC, min.
Signal Adjust, Zero	from factory set zero to 50% of full stroke range
Signal Adjust, Span	to 50% of factory set span
Thermal Effects, Zero	0.01% f.s./°F, max.
Thermal Effects, Span	0.01% f.s./°F, max.

ENVIRONMENTAL

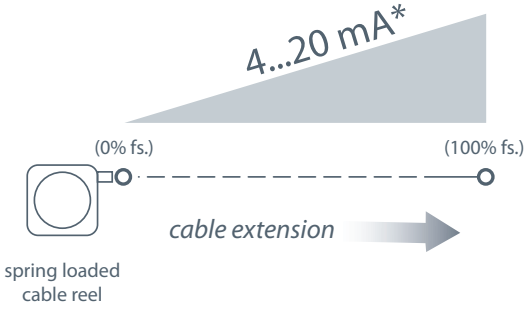
Enclosure	NEMA 4/4X/6, IP 67/68
Hazardous Area Certification	see ordering information
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g's to 2000 Hz maximum
Weight, Aluminum (Stainless Steel) Enclosure	3 lbs. (6 lbs.) max.



The PT8420 with its 4-20 mA feedback signal, is ideal for monitoring the stroke of a hydraulic cylinder and other applications requiring position data acquistion in harsh environments.

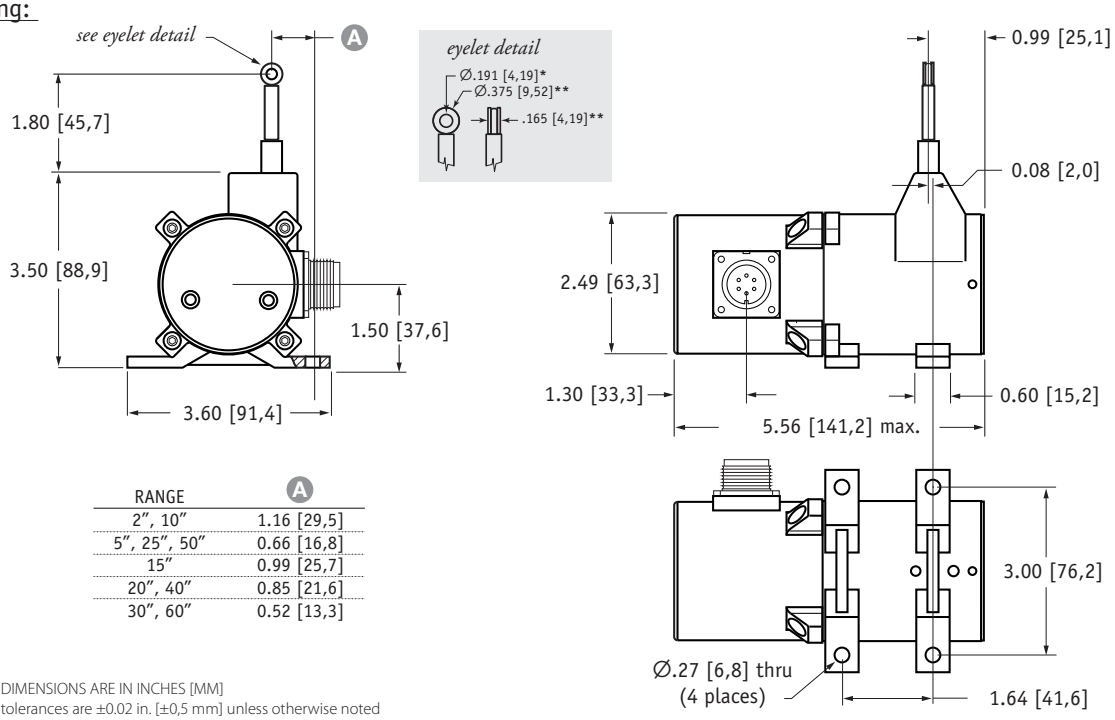
As a member of our family of NEMA 4-rated cable-extension transducers, the PT8420 provides a feedback signal that is proportional to the linear movement of a traveling stainless-steel extension cable. Simply mount the body of the transducer to a fixed surface and attach the extension cable to the moving object.

Output Signal:



**Optional 3-wire, 0...20mA output signal available.*

Outline Drawing:



RANGE	A
2", 10"	1.16 [29,5]
5", 25", 50"	0.66 [16,8]
15"	0.99 [25,7]
20", 40"	0.85 [21,6]
30", 60"	0.52 [13,3]

DIMENSIONS ARE IN INCHES [MM]
tolerances are ±0.02 in. [±0,5 mm] unless otherwise noted

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

Ordering Information:

Model Number:

PT8420- ____ Ⓡ - ____ Ⓐ Ⓑ ____ Ⓒ - ____ Ⓓ Ⓔ Ⓕ Ⓖ
order code:

Sample Model Number:

PT8420 - 0030 - 111 - 1110

Ⓡ	range:	30 inches
Ⓐ	enclosure/cable tension:	aluminum/standard (13 oz.)
Ⓑ	measuring cable:	.034 nylon-coated stainless
Ⓔ	output signal:	4...20mA, 2-wire
Ⓕ	electrical connection:	6-pin plastic connector
Ⓖ	cable guide option:	standard nylon cable guide

Full Stroke Range:

Ⓡ *order code:*	0002	0005	0010	0015	0020	0025	0030	0040	0050	0060
full stroke range, min:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.	60 in.
accuracy (% of f.s.):	1.00%	1.00%	0.18%	0.18%	0.18%	0.18%	0.18%	0.15%	0.15%	0.15%
potentiometer cycle life*:	2.5×10^6	2.5×10^6	5×10^5	5×10^5	5×10^5	5×10^5	5×10^5	2.5×10^5	2.5×10^5	2.5×10^5

**–1 cycle is defined as the travel of the measuring cable from full retraction to full extension and back to full retraction*

Enclosure Material and Measuring Cable Tension:

Ⓐ *order code:*	1	5	2	3	6	4	8	7	9
enclosure:	aluminum			303 stainless			316 stainless		
cable tension:	standard	medium	high	standard	medium	high	standard	medium	high
max. acceleration:	15 g	25 g	40 g	6 g	12 g	18 g	6 g	12 g	18 g

cable tension option specifications

Range:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.	60 in.
Standard:	39 oz.	16 oz.	39 oz.	26 oz.	20 oz.	16 oz.	13 oz.	20 oz.	16 oz.	13 oz.
Medium:	65 oz.	26 oz.	65 oz.	43 oz.	33 oz.	26 oz.	22 oz.	33 oz.	26 oz.	22 oz.
High:	116 oz.	47 oz.	116 oz.	77 oz.	60 oz.	47 oz.	40 oz.	60 oz.	47 oz.	40 oz.

tension tolerance: ± 50%

Ordering Information (cont.):

Measuring Cable:

Ⓑ order code:	1	2	3	4
cable construction:	Ø.034-inch nylon-coated stainless steel rope	Ø.047-inch bare stainless steel rope	Ø.058-inch PVC jacketed vectra fiber rope	Ø.031-inch bare stainless steel rope
available ranges:	*all ranges*	*5, 15, 20, 25, 30-inch only*	*thru 30 inches only*	*40, 50, 60-inch only*
general use:	indoor	outdoor, debris, high temperature	high voltage or magnetic field	outdoor, debris, high temperature

Output Signals:

Ⓔ order code:	1	2	3	4	5*	6*
output signal options:	4...20 mA	20...4 mA	0...20 mA	20...0 mA	4...20 mA	20...4 mA
	4 ◢ 20	20 ◣ 4	0 ◢ 20	20 ◣ 0	4 ◢ 20	20 ◣ 4
sensitivity:	16 mA/full stroke ±0.25%		20 mA/full stroke ±0.25%		16 mA/full stroke ±0.25%	
wiring configuration:	2 – wire		3 – wire		2 – wire	
input voltage:	8 – 34 vdc		14 – 29 vdc		14 – 32 vdc	
hazardous area certification:	not certified				CSA • Cenelec	

Example:

ordercode = **1** = 4...20 mA { = 4 mA, = 20 mA

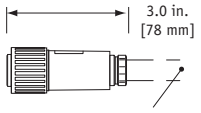
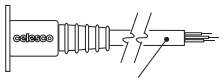
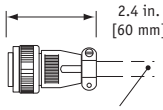
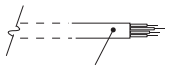
Hazardous Area Certifications:

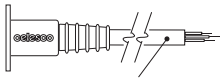
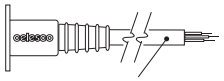
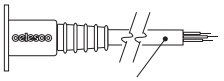
CSA Standard 22.2 Class 1 Groups A, B, C and D

Cenelec LCIE EEx ia IIc T4

***IMPORTANT:** *intrinsically safe when powered from a CSA certified zener barrier rated 28 VDC max, 110 mA max per installation drawing#677984*

Electrical Connection:

Ⓕ order code:	1	2	3	4
	6-pin plastic connector w/mating plug	10-ft. [3 M] waterproof cable	6-pin metal connector w/mating plug	25-ft. [7.5 M] instrumentation cable
	IP 67, NEMA 4X,6**	**IP 67, NEMA 4X**, 6**	**IP 65, NEMA 4**	**IP 67, NEMA 6**
				
	1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 3-conductor, 18 AWG type SJTOW	3/8-in. [9 mm] max cable dia. 16 AWG max conductor size connector: MS3102E-14S-6P mating plug: MS3106E-14S-6S	25 ft. x 0.2-in. [7,5 M x 5 mm] dia. 6-conductor, 24 AWG shielded

Ⓕ order code:	5	6	7
	100-ft. [30 M] waterproof cable	10-ft. [3 M] **pressure tested*** waterproof cable	100-ft. [30 M] **pressure tested*** waterproof cable
	IP 67, NEMA 4X,6**	**IP 68, NEMA 4X**, 6P**	**IP 68, NEMA 4X**, 6P**
			
	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTOW	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 3-conductor, 18 AWG type SJTOW	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 3-conductor, 18 AWG type SJTOW

6-pin Mating Plug

pin	2-wire	3-wire
A	8...34 vdc***	14...29 vdc
B	4...20 mA out	common
C	–	0...20 mA out
D	case ground	–



contact view

Waterproof Cable

color code	2-wire	3-wire
WHITE	8...34 vdc***	14...29 vdc
BLACK	4...20 mA out	common
GREEN	case ground	0...20 mA out

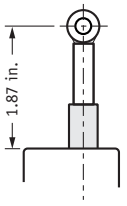
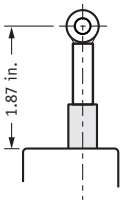
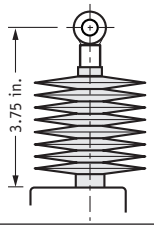
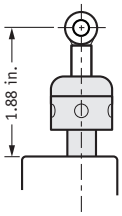
Instrumentation Cable

color code	2-wire	3-wire
RED	8...34 vdc***	14...29 vdc
BLACK	4...20 mA out	common
GREEN	case ground	0...20 mA out

Note: WHITE, BLUE, BROWN are not used.

**–Test pressure: 100 feet [30 meters] H_2O (40 PSID) Test Medium: Air; Duration: 2 hours. ** –applies to stainless steel enclosure only. ***14-32 VDC for hazardous area option.*

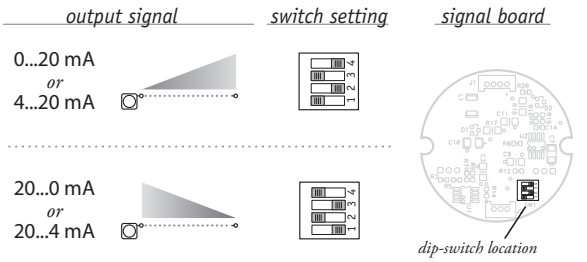
Cable Guide Options:

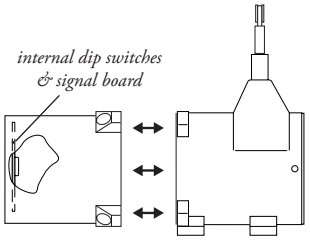
Ⓖ order code:	0	1	2*	3
	standard cable guide	stainless steel cable guide	polyurethane cable bellows	integral cable brush
				

**note: all ranges up to 25 inches only*

Output Signal Selection:

The output signal direction can be reversed at any time by simply changing the dip-switch settings found on the internal signal board. After the settings have been changed, adjustment of the Zero and Span trimpots will be required to precisely match signal values to the beginning and end points of the stroke.





To gain access to the signal board, remove four Allen-Head Screws and remove rear cover.

VLS Option - Free Release Protection

The patented Celesco Velocity Limiting System (VLS) is an option for PT8000 Series cable extension transducers that limits cable retraction to a safe 40 to 55 inches per second.

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.

VLS is NOT available for medium and high cable tension options, stainless steel enclosure, cable bellows or 2, 5 and 15-inch stroke ranges.

How To Configure Model Number for VLS Option:

VLS8420- ____ Ⓡ **-** **1** Ⓐ ___ Ⓑ **1** Ⓒ **-** **1** Ⓓ ___ Ⓔ ___ Ⓕ ___ Ⓖ

Ⓡ	Ⓑ	Ⓔ	Ⓕ	Ⓖ
0015	1	1	1	0
0020	2	2	2	1
0025	3	3	3	3
0030	4	4	4	
0040		5	5	
0050		6	6	
0060			7	

= available options**

creating VLS model number (example):

1. select PT8420 model — **PT8420-0060-111-1110**
2. remove "PT" from the model number — **~~PT~~ 8420-0060-111-1110**
3. add "VLS" — **VLS + 8420-0060-111-1110**
4. completed model number ! — **VLS8420-0060-111-1110**

***Note: please contact factory for a solution to options not supported.*

version: **12.2** last updated: **January 22, 2015**