0/4...20 mA Output • Hazardous Area Certification
Ranges: 0-2 to 0-60 inches
Industrial Grade

PT8420

Specification Summary:

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 ..... ± 0.28% to ±0.15% full stroke *see ordering information*
Repeatability ..... ± 0.05% full stroke
Resolution ..... essentially infinite
Measuring Cable Options ..... nylon-coated 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*
Weight, Aluminum (Stainless Steel) Enclosure ..... 3 lbs. (6 lbs.) max.

ELECTRICAL

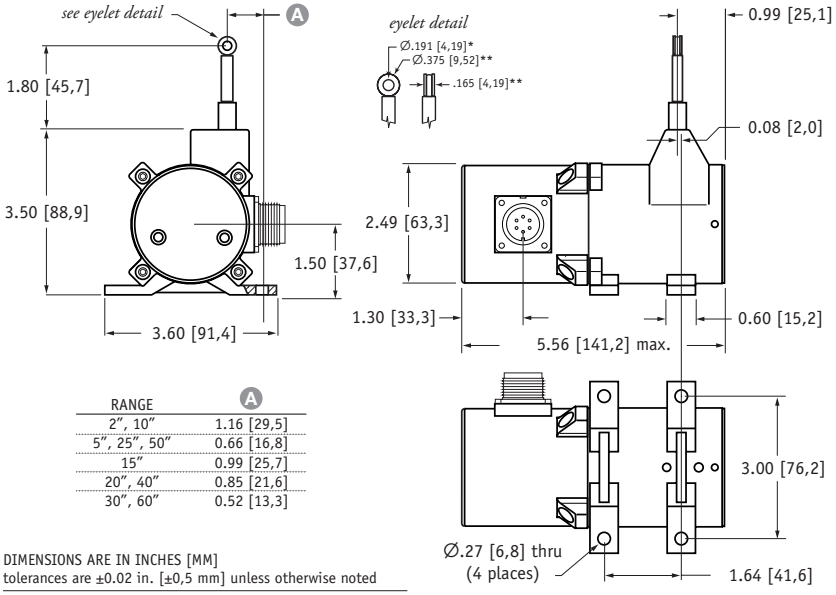
Input Voltage ..... *see ordering information*
Input Current ..... 20 mA max.
Maximum Loop Resitance (Load) ..... (loop supply voltage - 8)/0.020
Circuit Protection ..... 38 mA max.
Impedence ..... 100M ohms@100 VDC, min.
Output Signal Adjustment
  Zero Adjustment ..... from factory set zero to 50% of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

EMC COMPLIENCE PER DIRECTIVE 89/336/EEC

Emission/Immunity EN50081-2/EN50082-2



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]

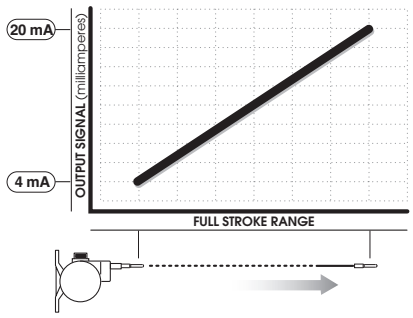
DIMENSIONS ARE IN INCHES [MM]
tolerances are ±0.02 in. [±0,5 mm] unless otherwise noted

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

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 acquisition in harsh environments.

As a member of Celesco's 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



Ordering Information:

Model Number:

PT8420- _____ **-** ___ ___ **1** **-** **1** ___ ___ ___
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	60
accuracy (% of f.s.):	0.28%	0.28%	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: ± 30%

Measuring Cable:

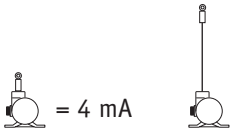
Ⓑ order code:	1	2	3	4
	Ø.034-inch nylon-coated stainless steel	Ø.047-inch non-coated stainless steel	Ø.062-inch thermoplastic	Ø.031-inch non-coated stainless steel
	available in all ranges	*5, 15, 20, 25, 30-inch ranges only*	*all ranges up to 30 inches only*	*40, 50, 60-inch ranges only*

Output Signals:

Ⓔ order code:	1	2	3	4	5*	6*
output signal options:	4...20 mA (4 → 20)	20...4 mA (20 → 4)	0...20 mA (0 → 20)	20...0 mA (20 → 0)	4...20 mA (4 → 20)	20...4 mA (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 – 40 vdc		14 – 29 vdc		14 – 32 vdc	
hazardous area certification:	not certified				CSA • Cenelec	

Example:

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



Hazardous Area Certifications:

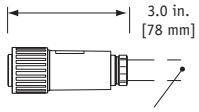
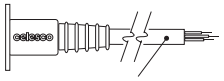
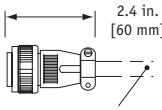
CSA Standard 22.2 Class 1 Groups A, B, C and D

Cenelec LCIE EEx ia IIc T4

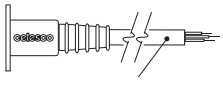
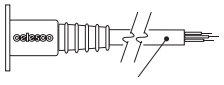
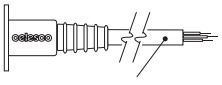
**IMPORTANT: intrinsically safe when powered from a CSA certified zener barrier rated 28 VDC max, 110 mA max per installation drawing#677984*

Electrical Connection:

F *order code:*

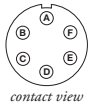
1	2	3	4
6-pin plastic connector w/mating plug	10-ft. [3 M] waterproof cable	6-pin metal connector w/mating plug	25-ft. [7.5 M] instrumentation cable
IP 67, NEMA 4X,6**	**IP 67, NEMA 4X**, 6**	**IP 65, NEMA 4**	**IP 67, NEMA 6**
			
1/2 - 5/16" [14 - 8 mm] cable dia. 16 AWG max conductor size connector: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

F *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 SJTW	10 ft. x 0.4-in. dia. [3 M x 10 mm dia.] 18 AWG, type SJTW	100 ft. x 0.4-in. dia. [30 M x 10 mm dia.] 18 AWG, type SJTW

6-pin Mating Plug

pin	2-wire	3-wire
A	8...40 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...40 vdc***	14...29 vdc
BLACK	4...20 mA out	common
GREEN	case ground	0...20 mA out

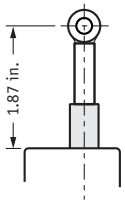
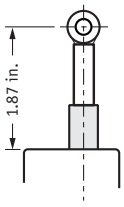
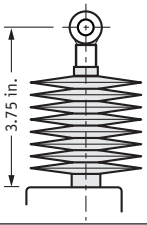
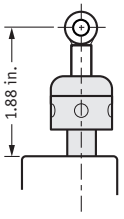
Instrumentation Cable

color code	2-wire	3-wire
RED	8...40 vdc***	14...29 vdc
BLACK	4...20 mA out	common
WHITE	n/a	n/a
GREEN	case ground	0...20 mA out

**–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:

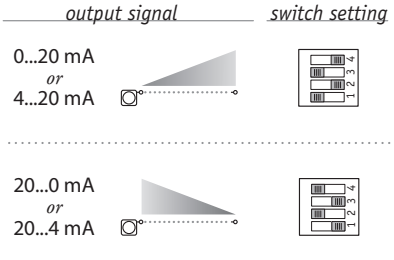
G *order code:*

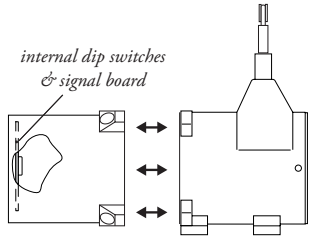
0	1	2*	3
standard cable guide	stainless steel cable guide	polyurethane cable bellows	integral cable brush
			

**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.

version: **8.1** last updated: **December 2, 2011**