PT5232

Cable Actuated Sensor
Industrial Grade • RS232

Absolute Linear Position to 250 inches (6350 mm)

Hard Anodized Aluminum Enclosure

High Cycle Applications

IP67 • NEMA 6 Protection
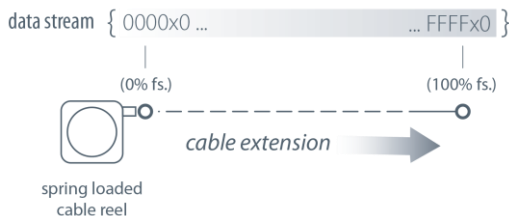
6.8" [173 mm] 4.0" [102 mm]

The PT5232, delivers position feedback via RS232 serial communication to your data acquisition or controller system. The PT5232 sends a raw 16-bit position count from 0000 to FFFF (hex). Additionally this device can be set to continuously send data or send data only when polled.

As the internal position sensing element is a precision potentiometer, this transducer maintains current accurate position even during power loss and does not need to be reset to a "home" position.

Output Signal

data stream { 0000x0 ...   ... FFFFx0 }

(0% fs.)   (100% fs.)

cable extension

spring loaded
cable reel

General

|	
Full Stroke Range	0-2 to 0-50 inches
Electrical Interface	RS232
Format	Hex
Accuracy	± 0.75 to 0.18% full stroke (see ordering information)
Repeatability	see ordering information
Resolution	± 0.003% full stroke
Measuring Cable	thermoplastic or stainless steel
Enclosure	hard-anodized aluminum
Sensor	plastic-hybrid precision potentiometer
Potentiometer Cycle Life	see ordering information
Maximum Cable Velocity • Acceleration	see ordering information
Weight	5 lbs., max

Electrical

Input Voltage	9...22 VDC
Input Current	40 mA
Baud Rate	9600 (selectable to 38.4K)
Update Rate	32msec

Environmental

Environmental Suitability	NEMA 6, IP 67
Operating Temperature	-40° to 200°F (-40° to 90°C)
Vibration	up to 10 g to 2000 Hz maximum

I/O Format

Data Format

1 bit | 8 bits | 1 bit

no parity bit
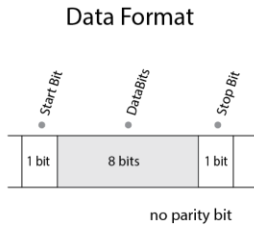
Data Frame

6 byte Hex string:

STX	CMD	B_0	B_1	B_2	ETX

STX = 0x02   CMD = Command Code* B_0 - B_2 = Data Field*   ETX = 0x03
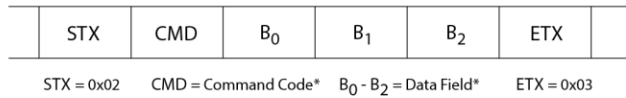
*—see below

Important! All communications to/from the transducer are in HEX!

User Commands:

	User Command				Sensor Response			
Description	<CMD>	<B_0>	<B_1>	<B_2>	<CMD>	<B_0>	<B_1>	<B_2>
Get Sensor Info	0x05	0x00	0x00	0x00	0x05	version[4]	date[5]	date[5]
Get Serial Number	0x15	0x00	0x00	0x00	0x15	serial number[3]		
Start Continuous Data	0x25	0x00	0x00	0x00	0x25	0x00	0x00	0x00
Stop Continuous Data	0x35	0x00	0x00	0x00	0x35	0x00	0x00	0x00
Get Position Data	0x45	0x00	0x00	0x00	0x45	CMC[1]	CMC[1]	status[2]

[1]CMC - Current Measurement Count (Position)

The Current Measurement Count (CMC) is the output data that indicates the present position of the measuring cable.

The CMC is a 16-bit value that occupies the first two bytes (B_0 and B_1) of the data field. B_0 is the MSB (most significant byte) and B_1 is the LSB (least significant byte).

The CMC starts at 0000H with the measuring cable fully retracted and continues upward to the end of the stroke range stopping at FFFFH. This holds true for all ranges.

[2]Status

The status byte is used as a flag to indicate the validity of the position signal that the internal electronics receives from the potentiometer.

Flags are as follows:
   0x00 = GREEN, 0x55 = YELLOW, 0xAA = RED

A "green" flag shows everything OK. A "yellow" or "red" flag indicates that the sensor has either been extended beyond its range or that there is a problem with the potentiometer.

[3]Serial Number

Each sensor has it's own unique serial number. This information can be retrieved by sending the sensor the "Get Serial Number" command.

The serial number is a 3 byte value from which ranges from 0 to 9999999 (decimal).

[4]Version

This is a single byte value (0-255 decimal) which indicates the currently installed firmware version of the sensor.

[5]Date

This is a 2 byte value showing the date of currently installed firmware. This value ranges from 01011 - 12319 (decimal). Format is MMDDY. While the month and day are expressed as two digit numbers the year is expressed in a single digit only.

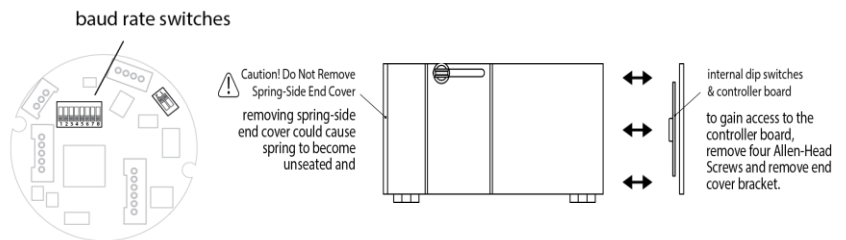Example: 08054 = August 5, 2004

Baud Rate

The baud rate can be set using switches 7 & 8 on the 8-pole DIP switch found on the rs232 controller board located inside the transducer.
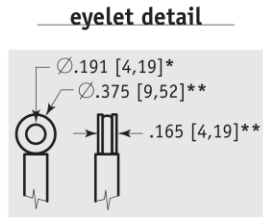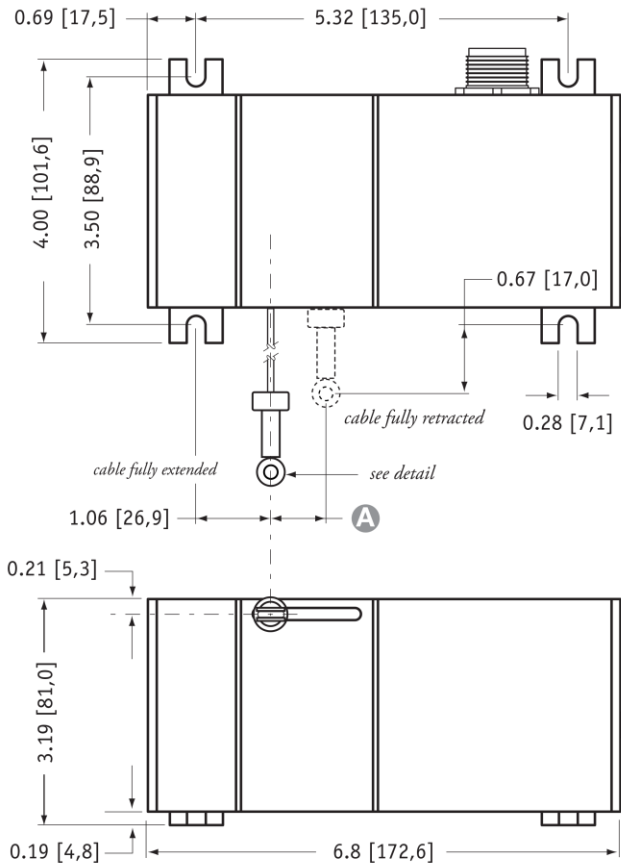
DIP-7	DIP-8	baud rate
0	0	9600
1	0	19200
0	1	38400
1	1	9600

↑ = "0"
↓ = "1"

RS232 Controller Board and DIP Switch Location

baud rate switches

Caution! Do Not Remove Spring-Side End Cover

removing spring-side end cover could cause spring to become unseated and

internal dip switches & controller board

to gain access to the controller board, remove four Allen-Head Screws and remove end cover bracket.

Outline Drawing

eyelet detail

⌀.191 [4,19]*
⌀.375 [9,52]**
.165 [4,19]**

Ⓐ	DIMENSION (inches[mm])	
RANGE	**N34** measuring cable	**S47 & V62** measuring cable
10	0.05 [1,2]	0.08 [2,0]
15	0.07 [1,8]	0.12 [3,0]
20	0.09 [2,4]	0.16 [3,9]
30	0.14 [3,5]	0.23 [5,9]
40	0.19 [4,7]	0.31 [7,9]
50	0.23 [5,9]	0.39 [9,9]
60	0.28 [7,0]	0.47 [11,8]
80	0.37 [9,4]	0.62 [15,8]
100	0.46 [11,7]	0.78 [19,7]
125	0.58 [14,7]	0.97 [24,7]
150	0.69 [17,6]	1.16 [29,6]
200	0.92 [23,5]	n/a
250	1.16 [29,3]	n/a
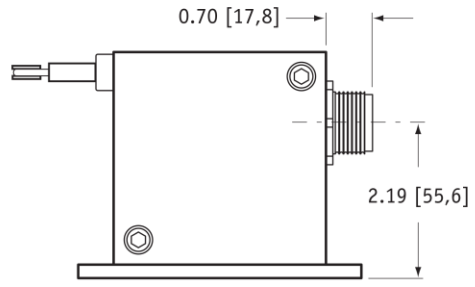
DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

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

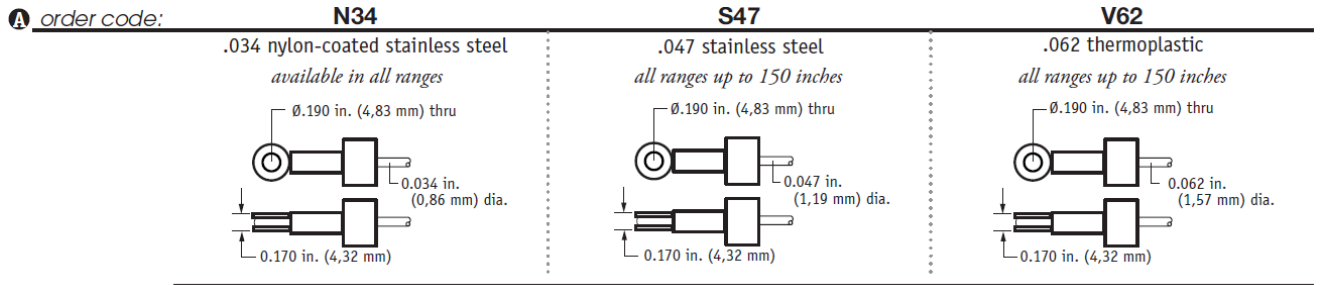## Ordering Information

Model Number:

Sample Model Number:

PT5232 - 50 - N34 - UP - M6

Ⓡ range: 50 inches
Ⓐ measuring cable: .034 nylon-coated stainless
Ⓑ measuring cable exit: up (top exit)
Ⓒ electrical connection: 6-pin plastic connector

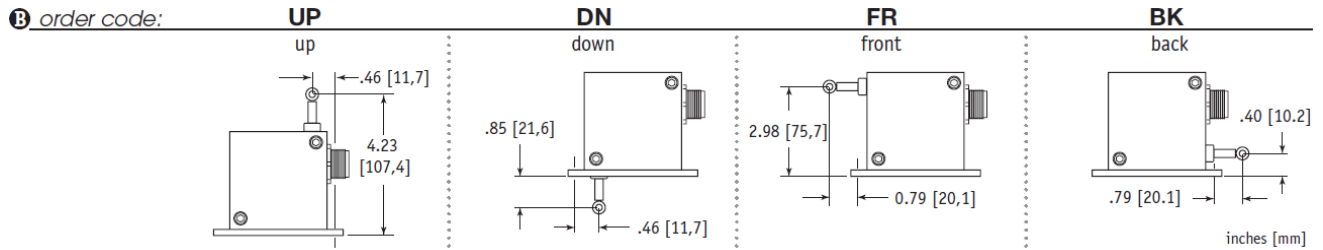**Full Stroke Range:**

Ⓡ order code:	10	15	20	25	30	40	50	60	80	100	125	150	200	250
full stroke range, min:	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.	60 in.	80 in.	100 in.	125 in.	150 in.	200 in.	250 in.
accuracy (±% of f.s.):	.75%	.6%	.5%	.5%	.5%	.3%	.3%	.25%	.25%	.25%	.25%	.18%	.18%	.18%
repeatability (±% of f.s.):	.1%	.1%	.05%	.05%	.05%	.05%	.05%	.02%	.02%	.02%	.02%	.02%	.02%	.02%
potentiometer cycle life:	2,500,000 cycles							500,000 cycles				250,000 cycles		
cable tension (20%):	41 ounces											21 ounces		
max. cable velocity/acceleration:	300 in./sec • 5 g											120 in./sec • 2 g		

Measuring Cable:

Ⓐ order code:

N34	S47	V62
.034 nylon-coated stainless steel	.047 stainless steel	.062 thermoplastic
available in all ranges	*all ranges up to 150 inches*	*all ranges up to 150 inches*

Ø.190 in. (4,83 mm) thru — 0.034 in. (0,86 mm) dia. — 0.170 in. (4,32 mm)

Ø.190 in. (4,83 mm) thru — 0.047 in. (1,19 mm) dia. — 0.170 in. (4,32 mm)

Ø.190 in. (4,83 mm) thru — 0.062 in. (1,57 mm) dia. — 0.170 in. (4,32 mm)

Cable Exit:

Ⓑ order code:

UP	DN	FR	BK
up	down	front	back

.46 [11,7]
4.23 [107,4]

.85 [21,6]
.46 [11,7]

2.98 [75,7]
0.79 [20,1]

.40 [10.2]
.79 [20.1]

inches [mm]

Electrical Connection:

Ⓒ order code:

M6	C25
6-pin plastic connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded
IP 67, NEMA 6	IP 67, NEMA 6

3.0 in. [78 mm]

.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

contact view

pin	signal
A	9...22 VDC
B	common
C	–
D	Transmitted Data
E	Received Data
F	common

color code	signal
Red	9...22 VDC
Black	common
White	–
Green	Transmitted Data
Blue	Received Data
Brown	common

PT5232 12/01/2015

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