PT1232

Cable Actuated Sensor
Industrial Grade • RS232

Absolute Linear Position to 50 inches (1270 mm)

Aluminum and Polycarbonate Enclosure

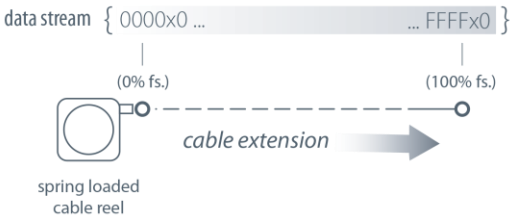
Compact Design

IP65 • NEMA 4 Protection

The PT1232, part of our compact line of cable extension transducers, delivers position feedback via RS232 serial communication to your data acquisition or controller system. The PT1232 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



General

Full Stroke Range Options	0-2 to 0-50 inches
Electrical Interface	RS232
Format	Hex
Accuracy	± 0.25 to 0.10% full stroke (see ordering information)
Repeatability	± 0.02% full stroke
Resolution	± 0.003% full stroke
Measuring Cable	0.019-in. dia. nylon-coated stainless steel
Enclosure	glass-filled polycarbonate and anodized aluminum
Sensor	plastic-hybrid precision potentiometer
Potentiometer Cycle Life	see ordering information
Maximum Retraction Acceleration	see ordering information
Weight	1 lb. max.

Electrical

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

Environmental

Enclosure	NEMA 4, IP 65
Operating Temperature	0º to 185ºF (-17º to 85ºC)
Vibration	up to 10 g to 2000 Hz maximum

I/O Format

Data Format

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.

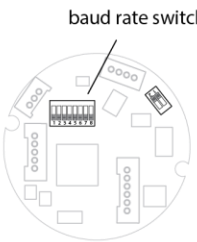
Example: 08054 = August 5, 2004

Baud Rate

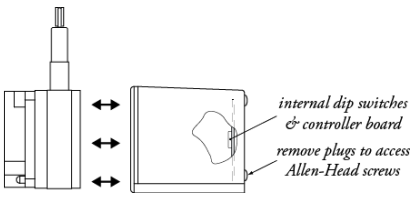
The baud rate can be set using switches 7 & 8 on the 8-pole DIP switch found on the rs232 controller board located inside the transducer.

DIP-7	DIP-8	baud rate
0	0	9600
1	0	19200
0	1	38400
1	1	9600

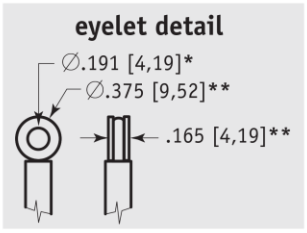
RS232 Controller Board and DIP Switch Location



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

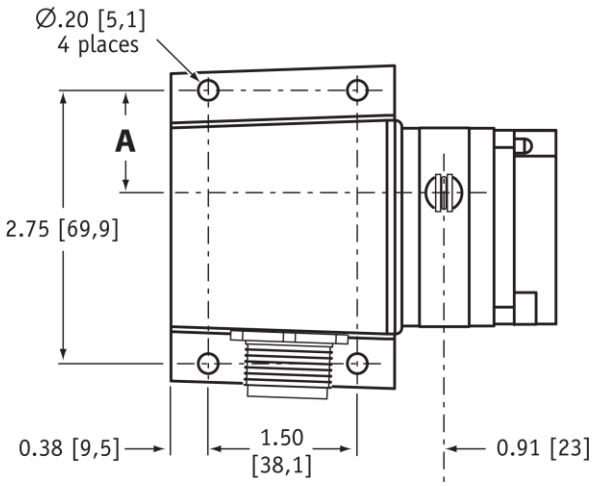


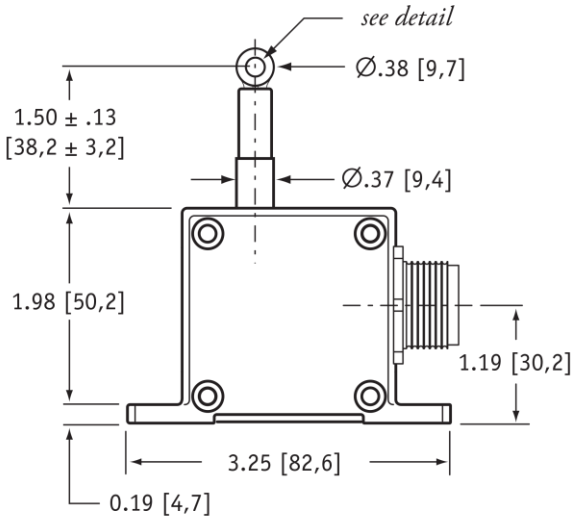
Outline Drawing

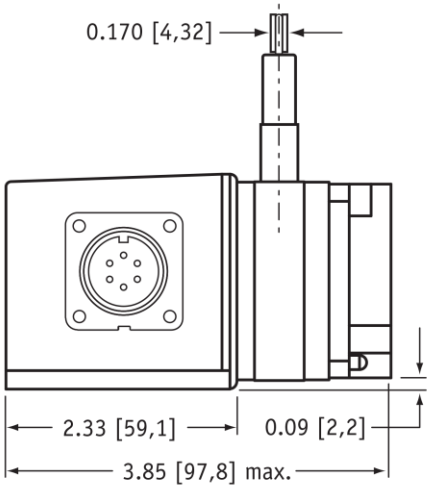


Range	A
2, 10	1.04 [26,4]
5, 25, 50	0.58 [14,7]
15, 30	0.82 [20,8]
20, 40	0.74 [18,8]

inches [mm]







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:

PT1232 - ____ - ____ - ____ - ____
order code: Ⓡ Ⓐ Ⓑ Ⓒ

Sample Model Number:

PT1232 - 50 - UP - M6 - SG

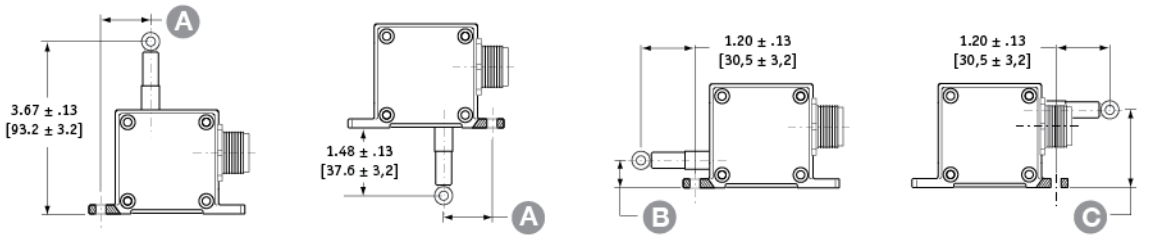
Ⓡ	range:	50 inches
Ⓐ	measuring cable exit:	up (top exit)
Ⓑ	electrical connection:	6-pin plastic connector
Ⓒ	cable guide	spring loaded

Full Stroke Range:

Ⓡ order code:	2	5	10	15	20	25	30	40	50
full stroke range, min:	2 in.	5 in.	10 in.	15 in.	20 in.	25 in.	30 in.	40 in.	50 in.
accuracy (% of f.s.):	0.25%		0.15%				0.10%		
potentiometer cycle life:	2,500,000 cycles		500,000 cycles				250,000 cycles		
cable tension (20%):	12 oz.	5 oz.	12 oz.	9 oz.	6 oz.	5 oz.	9 oz.	6 oz.	5 oz.
max. cable acceleration:	11 g	3 g	11 g	5 g	4 g	3 g	5 g	4 g	3 g

Cable Exit:

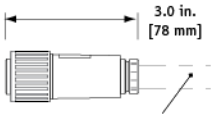
Ⓐ order code:	UP	DN	FR	BK
direction:	up	down	front	back



measurement range —	2	5	10	15	20	25	30	40	50
A	1.04 in. 26,4 mm	0.58 in. 14,7 mm	1.04 in. 26,4 mm	0.82 in. 20,8 mm	0.74 in. 18,8 mm	0.58 in. 14,7 mm	0.82 in. 20,8 mm	0.74 in. 18,8 mm	0.58 in. 14,7 mm
B	0.75 in. 19,1 mm	0.29 in. 6,1 mm	0.75 in. 19,1 mm	0.53 in. 13,5 mm	0.45 in. 11,5 mm	0.29 in. 6,1 mm	0.53 in. 13,5 mm	0.45 in. 11,5 mm	0.29 in. 6,1 mm
C	1.43 in. 36,3 mm	1.89 in. 48,0 mm	1.43 in. 36,3 mm	1.65 in. 41,9 mm	1.73 in. 43,9 mm	1.89 in. 48,0 mm	1.65 in. 41,9 mm	1.73 in. 43,9 mm	1.89 in. 48,0 mm

Electrical Connection:

Ⓑ order code:	M6	C25
	6-pin plastic connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded



.30 – .39 in. [8 – 10 mm] cable dia.
16 AWG max conductor size
connector: MS3102E-14S-6P
mating plug: MS3106E-14S-6S

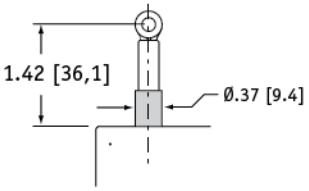
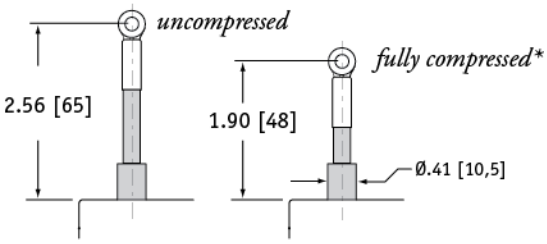
25 ft. x 0.2-in. dia.
[7,5 M x 5 mm dia.]
24 AWG, shielded

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

Cable Guide:

order code:	blank	SG
	standard cable guide	spring-loaded guide
		cushions impact from accidental free release
		

*note: start of full stroke range begins at full compression point (except 2-inch and 5-inch ranges).