

# Cable-Extension Position Transducer

## RS232 Data Communication

Ranges: 0-600 to 0-1700 inches

Industrial Grade

<Extended Range>  
**PT9232**

### Specification Summary:

#### GENERAL

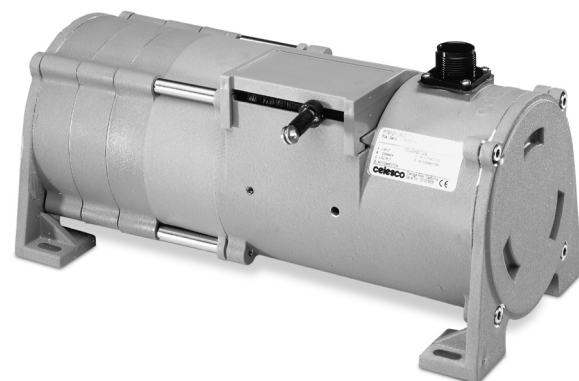
Full Stroke Ranges ..... 0-600 to 0-1700 inches  
Electrical Interface ..... RS232  
Format ..... HEX  
Accuracy .....  $\pm 0.10\%$  full stroke  
Repeatability .....  $\pm 0.02\%$  full stroke  
Resolution .....  $\pm 0.003\%$  full stroke  
Measuring Cable ..... nylon-coated stainless steel  
Enclosure Material ..... powder-painted aluminum or stainless steel  
Sensor ..... plastic-hybrid precision potentiometer  
Potentiometer Cycle Life ..... 250,000 cycles *before signal degradation may occur*  
Maximum Retraction Acceleration ..... *see ordering information*  
Maximum Velocity ..... *see ordering information*  
Weight, Aluminum (Stainless Steel) Enclosure ..... .8 lbs. (16 lbs.), max.

#### ELECTRICAL

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

#### ENVIRONMENTAL

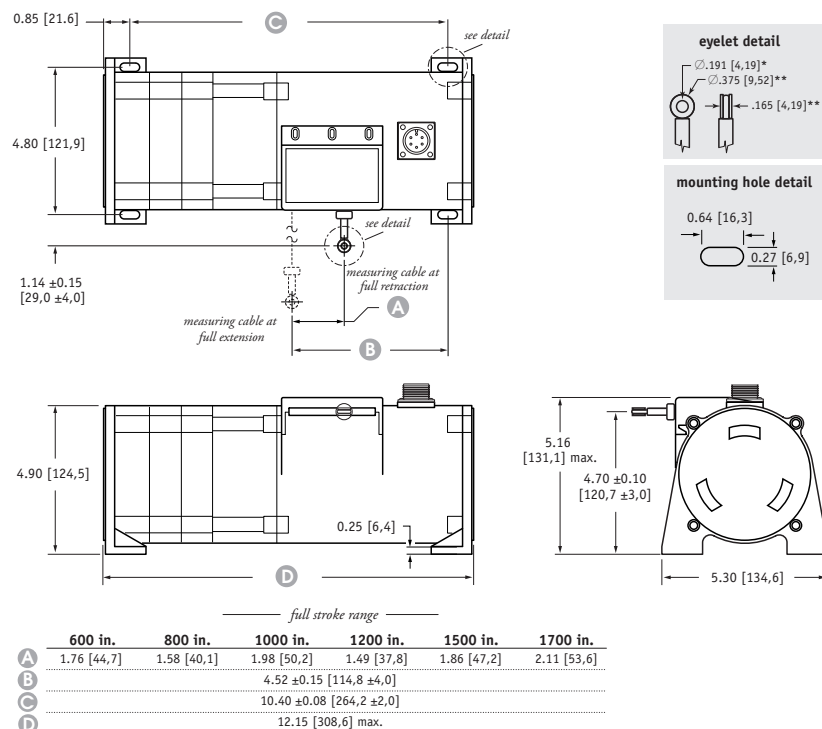
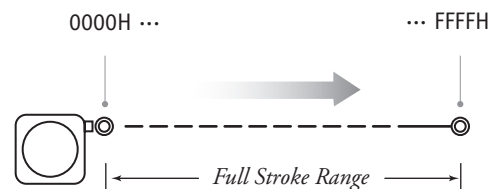
Environmental Suitability ..... NEMA 4X/6, IP 67  
Operating Temperature ..... -40° to 200°F (-40° to 90°C)  
Vibration ..... up to 10 G's to 2000 Hz maximum



The PT9232 delivers position feedback via RS232 serial communication to your data acquisition or controller system. The PT9232 sends a raw 16-bit count from 0000H to FFFFH. 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

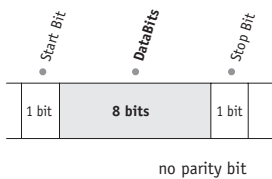


DIMENSIONS ARE IN INCHES [MM]  
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.

\* tolerance = +.005 -.001 [+13 -.03]  
\*\* tolerance = +.005 -.005 [+13 -.13]

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**I/O Format:****Data Format****Data Frame**

6 byte Hex string:

STX	CMD	B <sub>0</sub>	B <sub>1</sub>	B <sub>2</sub>	ETX
STX = 0x02	CMD = Command Code*	B <sub>0</sub> - B <sub>2</sub> = 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 <sub>0</sub> >	<B <sub>1</sub> >	<B <sub>2</sub> >	<CMD>	<B <sub>0</sub> >	<B <sub>1</sub> >	<B <sub>2</sub> >
Get Sensor Info	0x05	0x00	0x00	0x00	0x05	version <sup>(4)</sup>	date <sup>(5)</sup>	date <sup>(5)</sup>
Get Serial Number	0x15	0x00	0x00	0x00	0x15	serial number <sup>(3)</sup>		
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 <sup>(1)</sup>	CMC <sup>(1)</sup>	status <sup>(2)</sup>

**(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<sub>0</sub> and B<sub>1</sub>) of the data field. B<sub>0</sub> is the MSB (most significant byte) and B<sub>1</sub> 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 its 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**

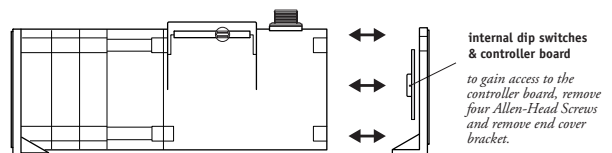
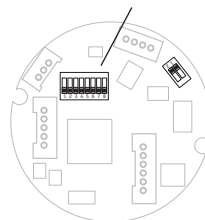
This is a 2 byte value showing the date of currently installed firmware. This value ranges from 01011 - 12319 (decimal). Format is MMDDY. While the month and day are expressed as two digit numbers the year is expressed in a single digit only.

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***baud rate switches*

## Ordering Information:

## Model Number:

**PT9232** - - - -  
 order code: **R** **A** **B** **C**

Sample Model Number:

**PT9232 - 1200 - AL - FR - M6**

**R** range: 1200 inches  
**A** enclosure: aluminum  
**B** cable exit: front (horizontal)  
**C** electrical connection: 6-pin plastic connector

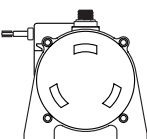
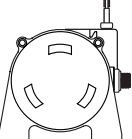
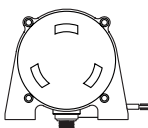
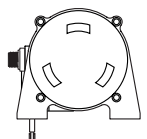
## Full Stroke Range:

<b>R</b> order code:	600	800	1000	1200	1500	1700
full stroke range, min:	600 in.	800 in.	1000 in.	1200 in.	1500 in.	1700 in.
cable tension ( $\pm 35\%$ ):	27 oz.	24 oz.	20 oz.	19 oz.	18 oz.	17 oz.
measuring cable:	.034-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.019-in. dia. nylon-coated stainless	.014-in. dia. nylon-coated stainless	.014-in. dia. nylon-coated stainless

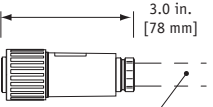
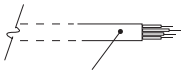
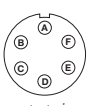

## Enclosure Material:

<b>A</b> order code:	AL	SS
enclosure material:	powder-painted aluminum	303 stainless steel
max. acceleration:	1g	.33g
max. velocity:	60 inches/sec.	20 inches/sec.

## Cable Exit:

<b>B</b> order code:	FR	UP	BK	DN
	front	top	back	down
				

## Electrical Connection:

<b>C</b> order code:	M6	C25
	6-pin plastic connector with mating plug IP 67, NEMA 6, NEMA 4X (stainless enclosure only)	25-ft. instrumentation cable 24 AWG, shielded IP 67, NEMA 6
	 .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	 color code
	<b>pin</b> A B C D E F	<b>signal</b> 9...22 VDC common Transmitted Data Received Data common
		<b>color code</b> Red Black White Green Blue Brown
		<b>signal</b> 9...22 VDC common Transmitted Data Received Data common

version: 6.0 last updated: December 7, 2011

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