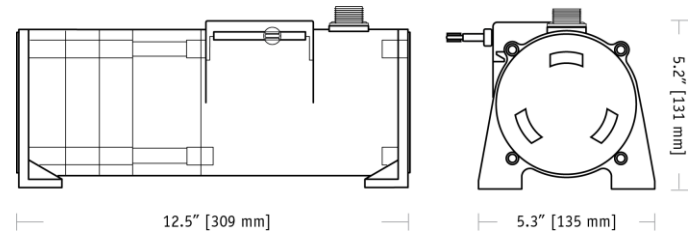# PT9232 (Extended Range)

Cable Actuated Sensor
Heavy Industrial • RS232

Linear Position/Velocity to 1700 inches (4300 cm)

Stroke Range Options: 0-600 to 0-1700 inches
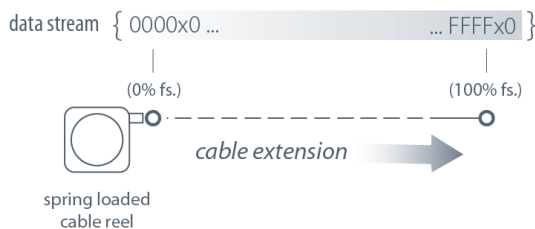
VLS Option to Prevent Free-Release Damage

IP68 • NEMA 6 Protection

5.2" [131 mm]

12.5" [309 mm]   5.3" [135 mm]

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

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

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

cable extension

spring loaded
cable reel

General

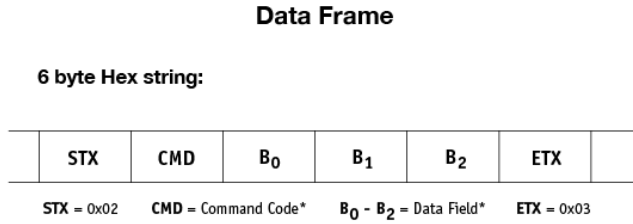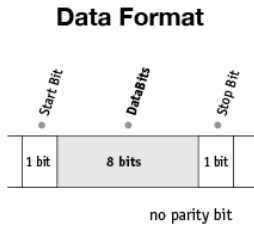|	
Full Stroke Range	0-600 to 0-1700 inches
Electrical Interface	RS232
Format	HEX
Accuracy	± 0.10% full stroke
Repeatability	± 0.02% full stroke
Resolution	± 0.003% full stroke
Measuring Cable	stainless steel or thermoplastic
Enclosure Material	powder-painted aluminum or 303 stainless steel
Sensor	plastic-hybrid precision potentiometer
Potentiometer Cycle Life	≥ 250,000 cycles
Maximum Retraction Acceleration	see ordering information
Maximum Velocity	see ordering information
Weight, Aluminum (Stainless Steel) Enclosure	14 lbs. (28 lbs.), 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 4/4X/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 — Start Bit | 8 bits — DataBits | 1 bit — Stop 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:

Description	User Command				Sensor Response			
	<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 **C**urrent **M**easurement **C**ount (**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.
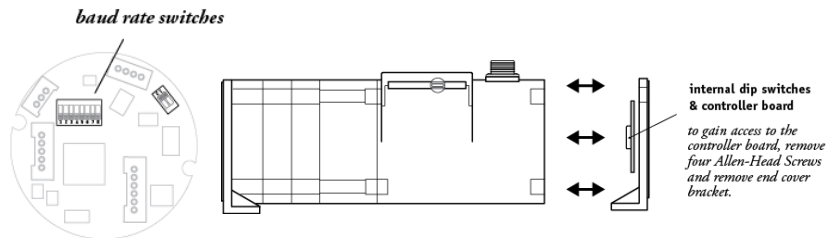
Example: 08054 = August 5, 2004

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

internal dip switches & controller board

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

Outline Drawing
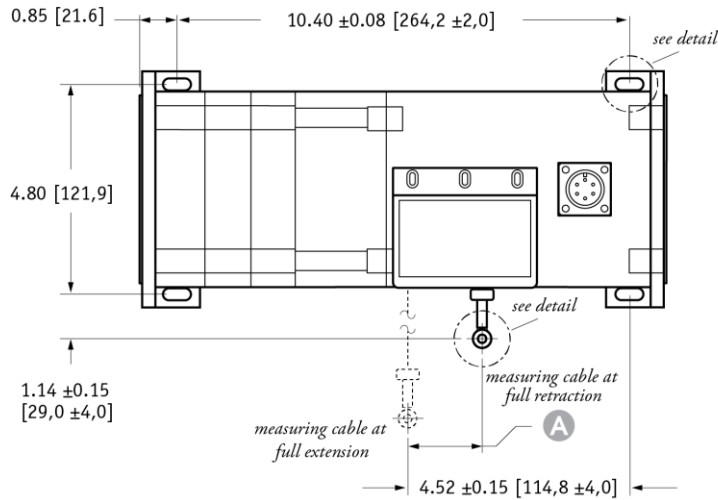
mounting hole detail
0.64 [16,3]
0.27 [6,9]

eyelet detail
⌀.191 [4,85]*
⌀.375 [9,52]**
.165 [4,19]**
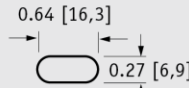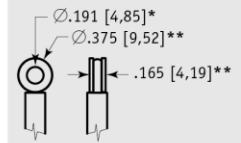
A DIMENSION

RANGE	inches [mm]
600	1.76 [44,7]
800	1.58 [40,1]
1000	1.98 [50,2]
1200	1.98 [50,2]
1500	1.86 [47,2]
1700	2.11 [53,6]
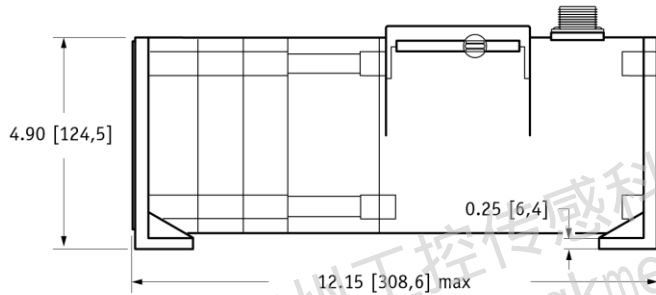
DIMENSIONS ARE IN INCHES [MM]
tolerances are 0.03 IN. [0.5 MM] unless otherwise noted.
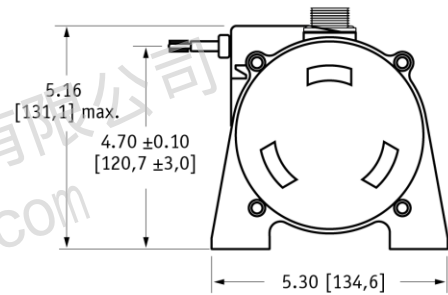
* tolerance = +.005 −.001 [+.13 −.03]
** tolerance = +.005 −.005 [+.13 −.13]

Ordering Information

Model Number:

Sample Model Number:

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:

R 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 (±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:

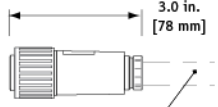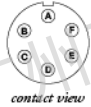| Ⓐ order code:	AL	SS
enclosure material:	powder-painted aluminum	303 stainless steel
max. acceleration:	1g	1g
max. velocity:	60 inches/sec.	60 inches/sec.

Cable Exit:

Ⓑ order code:	FR	UP	BK	DN
	front	top	back	down

Electrical Connection:

Ⓒ order code:	M6	C25
	6-pin plastic connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded
	IP 67, NEMA 6, NEMA 4X (stainless enclosure only)	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

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

contact view

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

广州工控传感科技有限公司

电话：400-822-6658
邮箱：gzgk@foxmail.com
网址：www.gkmems.com
地址：广州市天河区珠江西路15号16层