ALTHEN SENSORS & CONTROLS

mm PT8232

Description

- Absolute Linear Position to 60 inches (1524 mm)
- Aluminum or Stainless Steel Enclosure Options
- VLS Option To Prevent Free-Release Damage
- IP67 · NEMA6 Protection

The PT8232 delivers position feedback via RS232 serial communication to your data acquisition or controller system. The PT8232 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.

GENERAL

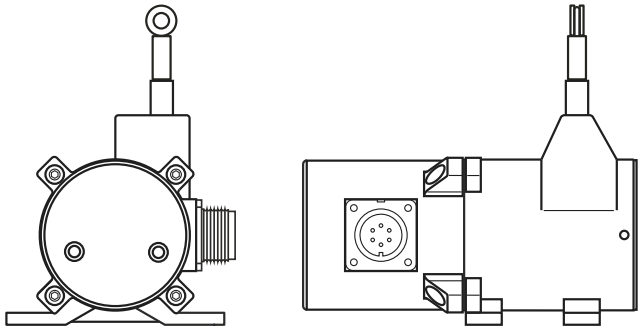
Full Stroke Ranges	0-2 to 0-60 inches
Electrical Interface	RS232
Format	HEX
Accuracy	see ordering information
Repeatability	± 0.02% full stroke
Resolution	± 0.003% full stroke
Measuring Cable	stainless steel or thermoplastic
Enclosure Material	powder-painted aluminum or stainless steel
Sensor	plastic-hybrid 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

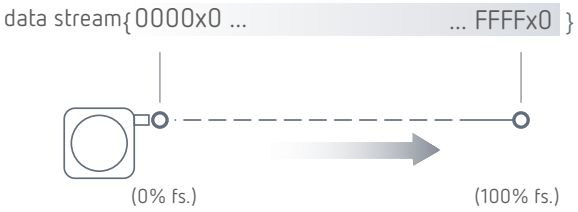
Input Voltage	9...22 VDC
Input Current	40 mA
Baud Rate	9600 (selectable to 38.4K)
Update Rate	32 msec

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



Output signal



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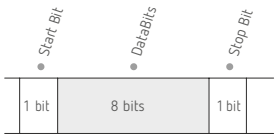
I/O Format

Data Format



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

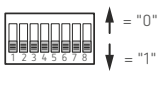
This is a 2 byte value showing the date of currently installed firmware. This value ranges from 01011 - 12319 (decimal). Format is MMDDY. While the month and day are expressed as two digit numbers the year is expressed in a single digit only.

Example: 08054 = August 5, 2004

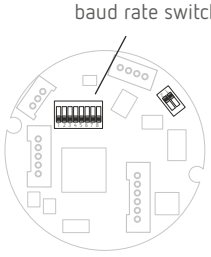
Baud Rate

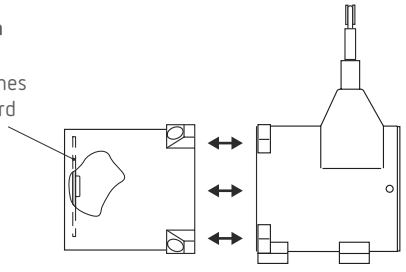
The baud rate can be set using switches 7 & 8 on the 8-pole DIP switch found on the rs232 controller board located inside the transducer.

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



RS232 Controller Board and DIP Switch Location





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

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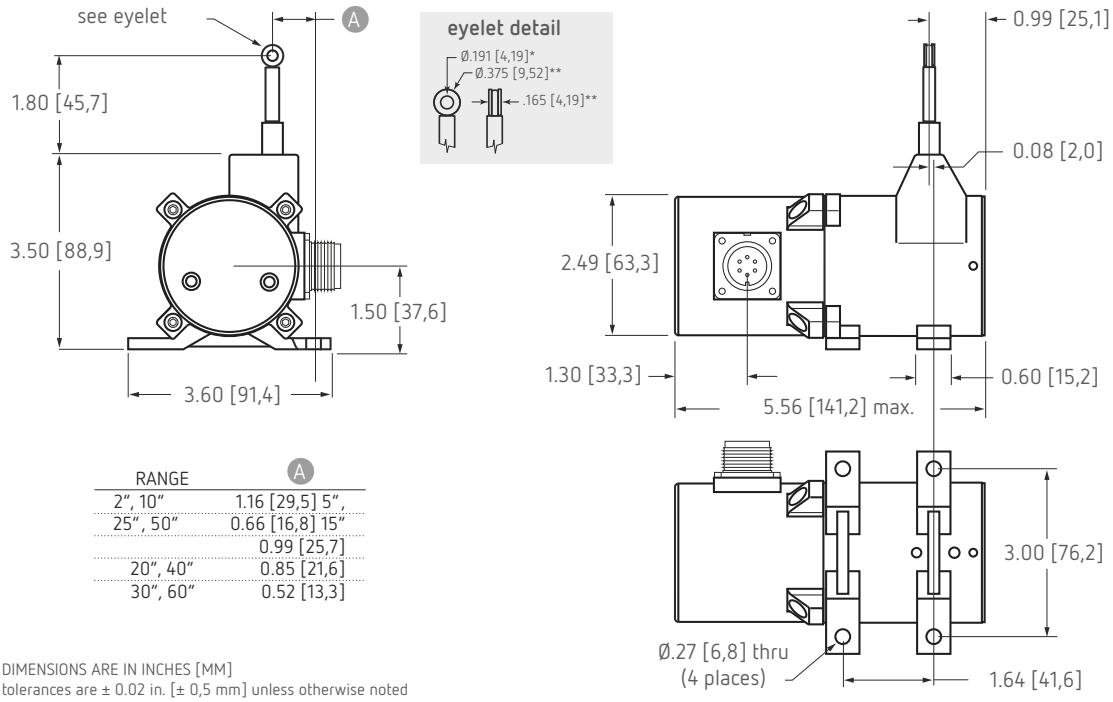
Outline Drawing



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 −

Ordering Information:

Model Number

PT8232 - _____ - _____ - _____ - _____ - _____ - _____ - _____
order code: R A B C D E

Sample Model Number:

PT8232 - 50 - AL - N34 - T1 - CG - M6

R	range:	200 inches
A	enclosure	aluminum
B	measuring cable:	.034 nylon-coated stainless
C	measuring cable tension:	standard
D	cable guide:	standard
E	electrical connection:	6-pin plastic connector

Full Stroke Range

R order code:	2	5	10	15	20	25	30	40	50	60
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.):	1.00%	1.00%	0.15%	0.15%	0.15%	0.15%	0.15%	0.10%	0.10%	0.10%
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

A order code:	AL	SS	316
	powder-painted aluminum	303 stainless steel	316 stainless steel

Measuring Cable

B order code:	N34	S47	S31	V62
cable construction:	Ø.034-inch nylon-coated stainless steel rope	Ø.047-inch bare stainless steel rope	Ø.031-inch bare stainless steel rope	Ø.058-inch PVC jacketed vectra fiber rope
available ranges:	all ranges	5, 15, 20, 25, 30-inch only	40, 50, 60-inch only	thru 30 inches only
general use:	indoor	outdoor, debris, high temperature	outdoor, debris, high temperature	high voltage or magnetic field

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Ordering Information (cont.)

Measuring Cable Tension

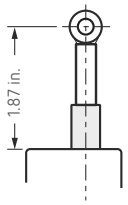
C order code:	T1	T2	T3
	standard tension	medium tension	high tension
full stroke range cable tension specifications: 2, 10-inch: 15-	39 oz.	65 oz.	116 oz.
inch:	26 oz.	43 oz.	77 oz.
20, 40-inch: 5,	20 oz.	33 oz.	60 oz.
25, 50-inch:	16 oz.	26 oz.	47 oz.
30, 60-inch:	13 oz.	22 oz.	40 oz.

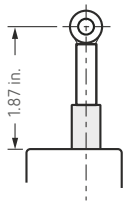
tension tolerance: ± 50%

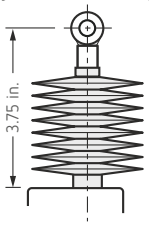
	maximum acceleration	maximum acceleration	maximum acceleration
aluminum enclosure:	15 g	25 g	40 g
stainless steel enclosure:	6 g	12 g	18 g

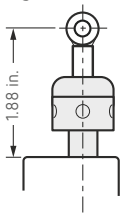
Cable Guide Options

D order code:	CG	SS	CB*	BR
	standard cable guide	stainless steel cable guide	polyurethane cable guide	integral cable brush





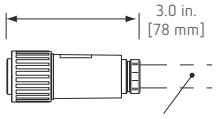




*note: all ranges up to 25 inches only

Electrical Connection

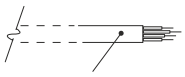
E order code:	M6	C25
	6-pin plastic connector with mating plug	25-ft. instrumentation cable 24 AWG, shielded
	IP 67, NEMA 6, NEMA 4X (stainless enclosure only)	IP 67, NEMA 6



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

contact view

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



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

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

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