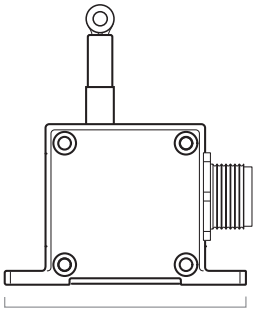
# PT1232

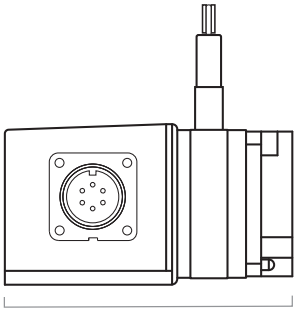
## Industrial Grade • RS232 Communication

**Absolute Linear Position to 50 inches (1270 mm)**
**Aluminum and Polycarbonate Enclosure**
**Compact Design**
**IP65 • NEMA 4 Protection**





3.3" [83 mm]



3.9" [98 mm]

### GENERAL

| | |
|---|---|
| Full Stroke Ranges | 0-2 to 0-50 inches |
| Electrical Interface | RS232 |
| Format | Hex |
| Accuracy | ± 0.25 to 0.10% full stroke |
| 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 |

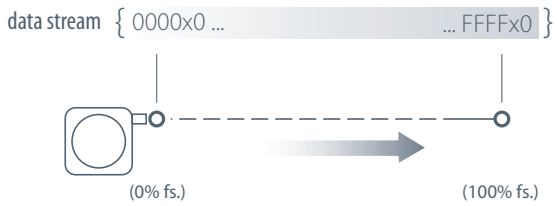
### ENVIRONMENTAL

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

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:

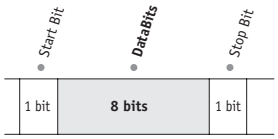



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celesco

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 **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

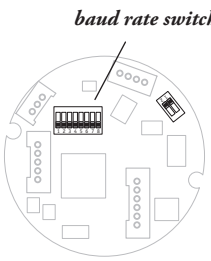
### Baud Rate

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.

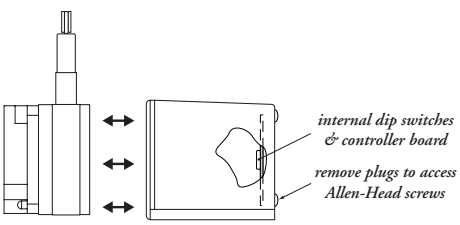
| DIP-7 | DIP-8 | baud rate |
|---|---|---|
| 0 | 0 | 9600 |
| 1 | 0 | 19200 |
| 0 | 1 | 38400 |
| 1 | 1 | 9600 |



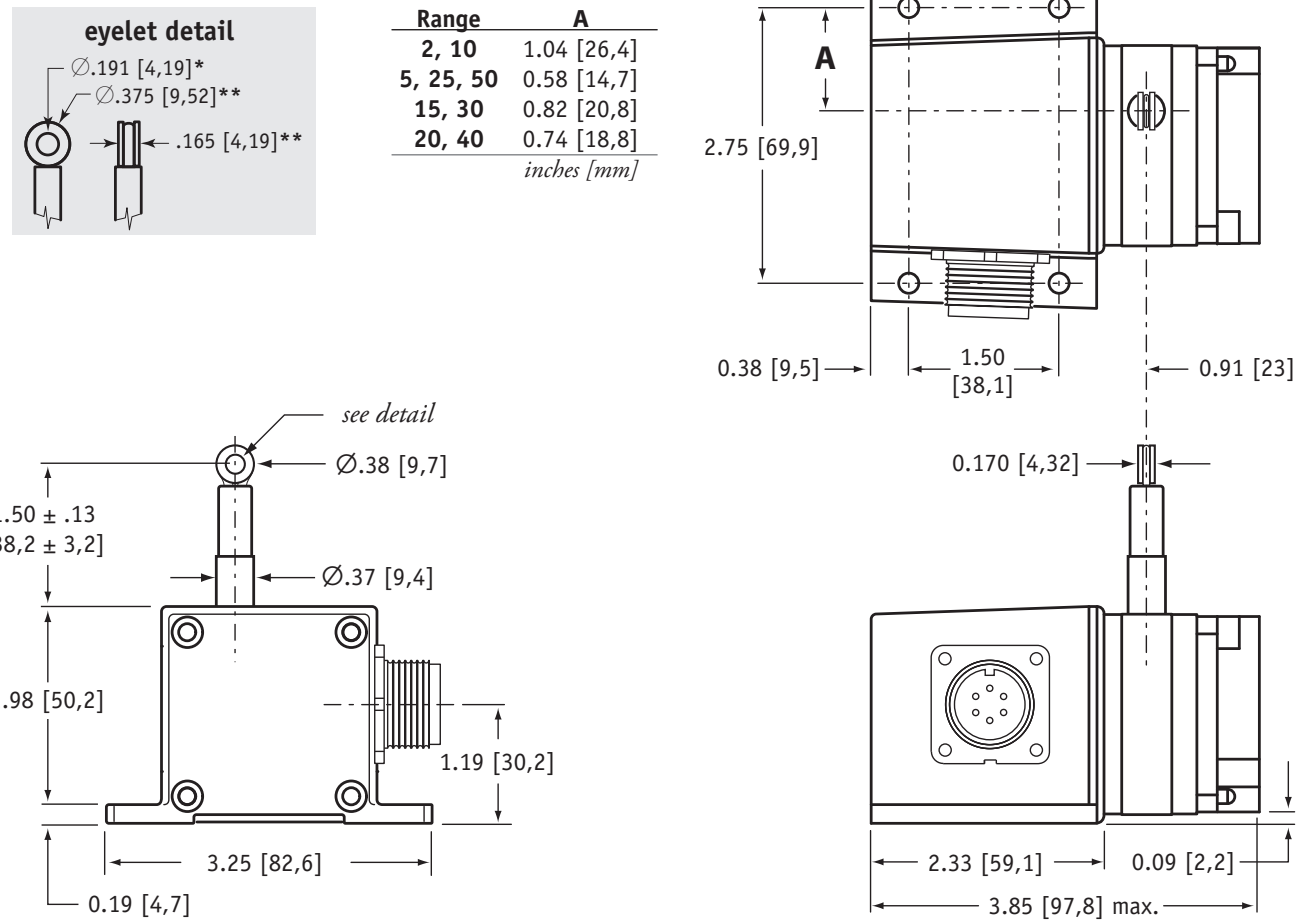

### RS232 Controller Board and DIP Switch Location




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



Outline Drawing:




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:*

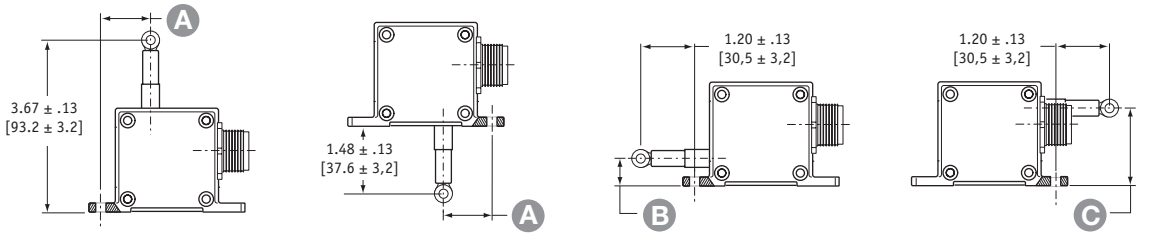
| Ⓡ *order code:* | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |
|---|---|---|---|---|---|---|---|---|---|
| full stroke range, min: | 2 in. | 5 in. | 10 in. | 15 in. | 20 in. | 25 in. | 30 in. | 40 in. | 50 in. |
| accuracy (% of f.s.): | 0.25% | | 0.15% | | | | 0.10% | | |
| potentiometer cycle life: | 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 |

Ordering Information (cont.):

## Cable Exit:

Ⓐ order code:

| | UP | DN | FR | BK |
|---|---|---|---|---|
| direction: | up | down | front | back |



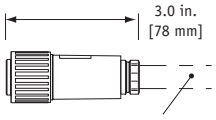

| *measurement range* — | 2 | 5 | 10 | 15 | 20 | 25 | 30 | 40 | 50 |
|---|---|---|---|---|---|---|---|---|---|
| A | 1.04 in.<br>26,4 mm | 0.58 in.<br>14,7 mm | 1.04 in.<br>26,4 mm | 0.82 in.<br>20,8 mm | 0.74 in.<br>18,8 mm | 0.58 in.<br>14,7 mm | 0.82 in.<br>20,8 mm | 0.74 in.<br>18,8 mm | 0.58 in.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

## Electrical Connection:

Ⓑ order code:

### M6

6-pin plastic connector with mating plug




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

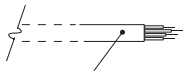



*contact view*

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

### C25

25-ft. instrumentation cable 24 AWG, shielded



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

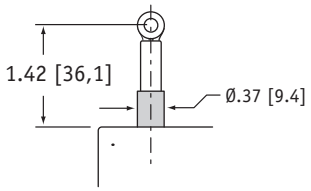
| color code | signal |
|---|---|
| Red | 9...22 VDC |
| Black | common |
| White | – |
| Green | Transmitted Data |
| Blue | Received Data |
| Brown | common |

## Cable Guide:

Ⓒ order code:

### blank

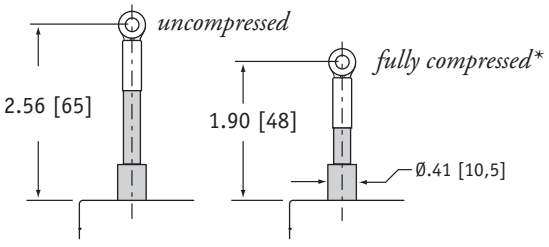
standard cable guide




### SG

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).*

version: **4.0** last updated: **March 13, 2014**