The PT5232 delivers position feedback via RS232 serial communication to your data acquisition or controller system. The PT5232 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

The PT5232 cable actuated sensor is designed for absolute linear position ranging from 0 to 250 inches (6350 mm) with a hard-anodized aluminum enclosure. It is suitable for high-cycle applications and offers protection against NEMA 6 and IP 67 standards.

General
- Full Stroke Range: 0-2 to 0-50 inches
- Electrical Interface: RS232
- Format: Hex
- Accuracy: ± 0.75 to 0.18% full stroke (see ordering information)
- Repeatability: see ordering information
- Resolution: ± 0.003% full stroke
- Measuring Cable: thermoplastic or stainless steel
- Enclosure: hard-anodized aluminum
- Sensor: plastic-hybrid precision potentiometer
- Potentiometer Cycle Life: see ordering information
- Maximum Cable Velocity & Acceleration: see ordering information
- Weight: 5 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 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**: Data
- **1 bit**: Stop Bit

No parity bit.

### Data Frame

<table>
<thead>
<tr>
<th>STX</th>
<th>CMD</th>
<th>B0</th>
<th>B1</th>
<th>B2</th>
<th>ETX</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x02</td>
<td>Command Code*</td>
<td></td>
<td></td>
<td></td>
<td>0x03</td>
</tr>
</tbody>
</table>

*Data Field^*:

- B0
- B1
- B2

### Important!

All communications to/from the transducer are in HEX!

### User Commands:

<table>
<thead>
<tr>
<th>Description</th>
<th>CMD</th>
<th>B0</th>
<th>B1</th>
<th>B2</th>
<th>Sensor Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Get Sensor Info</td>
<td>0x05</td>
<td>0x00</td>
<td>0x00</td>
<td>0x00</td>
<td>version^4</td>
</tr>
<tr>
<td>Get Serial Number</td>
<td>0x15</td>
<td>0x00</td>
<td>0x00</td>
<td>0x00</td>
<td>serial number^3</td>
</tr>
<tr>
<td>Start Continuous Data</td>
<td>0x25</td>
<td>0x00</td>
<td>0x00</td>
<td>0x00</td>
<td>0x25</td>
</tr>
<tr>
<td>Stop Continuous Data</td>
<td>0x35</td>
<td>0x00</td>
<td>0x00</td>
<td>0x00</td>
<td>0x35</td>
</tr>
<tr>
<td>Get Position Data</td>
<td>0x45</td>
<td>0x00</td>
<td>0x00</td>
<td>0x00</td>
<td>CMC^1, status^2</td>
</tr>
</tbody>
</table>

### 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.

### 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 99999999 (decimal).

### Version

This is a single byte value (0-255 decimal) which indicates the currently installed firmware version of the sensor.

### 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.

<table>
<thead>
<tr>
<th>DIP-7</th>
<th>DIP-8</th>
<th>Baud Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>9600</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>19200</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>38400</td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>9600</td>
</tr>
</tbody>
</table>

### RS232 Controller Board and DIP Switch Location

![Baud rate switches](image)

- **DIP-7**
  - 0 = “0”
  - 1 = “1”

- **DIP-8**
  - 0 = “0”
  - 1 = “1”

- **Controller board**
  - To gain access to the controller board,
  - Remove the Allen-Head screws and remove end cover bracket.

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Outline Drawing

Ordering Information

Model Number:

Full Stroke Range:

Sample Model Number:

-  

PT5232 - 50 - N34 - UP - M6

R: range - 50 inches
A: measuring cable: .034 nylon-coated stainless
B: measuring cable exit: up (top exit)
C: electrical connection: 6-pin plastic connector

<table>
<thead>
<tr>
<th>PT5232</th>
<th>50</th>
<th>N34</th>
<th>UP</th>
<th>M6</th>
</tr>
</thead>
</table>

range: 50 inches
measuring cable: .034 nylon-coated stainless
measuring cable exit: up (top exit)
electrical connection: 6-pin plastic connector

Full Stroke Range:

<table>
<thead>
<tr>
<th>Code</th>
<th>10</th>
<th>15</th>
<th>20</th>
<th>25</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>200</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>15</td>
<td>20</td>
<td>25</td>
<td>30</td>
<td>40</td>
<td>50</td>
<td>60</td>
<td>80</td>
<td>100</td>
<td>125</td>
<td>150</td>
<td>200</td>
<td>250</td>
</tr>
</tbody>
</table>

- full stroke range, min:
  - accuracy (2% of f.s.): .75%, .6%, .5%, .5%, .5%, .3%, .3%, .25%, .25%, .25%, .25%, .25%, .18%, .18%, .18%
  - repeatability (2% of f.s.): .1%, .1%, .05%, .05%, .05%, .05%, .02%, .02%, .02%, .02%, .02%, .02%, .02%

- potentiometer cycle life: 2,500,000 cycles
- max. cable velocity/acceleration:
  - 300 in/sec • 5 g
  - 120 in/sec • 2 g

Dimensions are in inches [mm]
tolerances are 0.03 inch [0.5 mm] unless otherwise noted.

* tolerance = +.005 – .001 [+ .13 – .03]
** tolerance = +.005 – .005 [+ .13 – .13]
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PT5232 12/01/2015