

CPA 2501 Avionics Digital Pressure Gauge

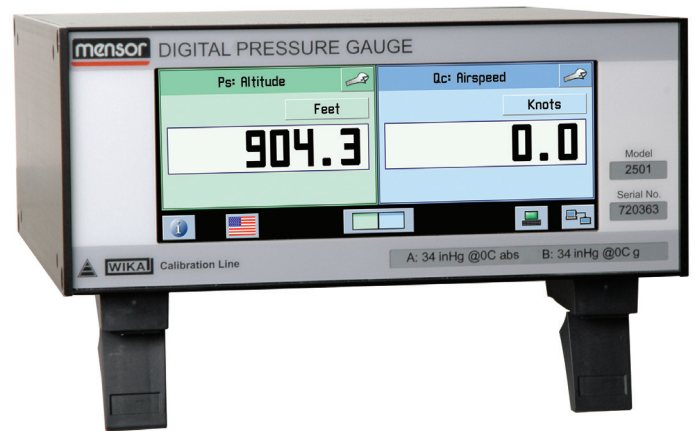
Mensor Data Sheet CPA 2501 12/2009

Applications

- Aviation Calibration Labs
- Aviation Repair Stations
- Manufacturers of Avionics Equipment
- Manufacturers of Aerospace Equipment
- Wind Tunnels

Features

- 0.01% of full scale pressure accuracy
- RVSM compliant
- Ps, Qc, Ps/Pt or Ps/Qc configuration with virtual channels
- Altitude and airspeed rate indication
- Altitude ranges to 100,000 ft.
- Airspeed ranges to 1150 knots
- Indicated or True Airspeed
- Indication in standard altitude and airspeed units



CPA 2501 Avionics Digital Pressure Gauge

Description

Applications

The CPA 2501 is used in aviation and aerospace applications for calibration of altimeters and airspeed indicators, displaying altitude, airspeed, altitude rate (vertical airspeed) and airspeed rate (acceleration). Applied wherever there is a need for a high level of accuracy in an avionics indicator or calibration device.

Functional Flexibility

The CPA 2501 can be configured with an altitude channel and an airspeed channel consisting of Ps/Pt or Ps/Qc. It can be configured as a single channel altitude/altitude rate indicator, (Ps only) a single channel airspeed/airspeed rate indicator (Qc only) or it can be a dual channel unit configured as Ps/Pt or Ps/Qc. In the Ps/Pt version the airspeed/airspeed rate channel is a calculated channel. An optional barometer can be installed for display on any channel or as a separate channel. Pressure ranges for each channel can be specified by the customer. Guidelines for ranges are given in the pressure range section of the specifications on page 2.

Versions

The CPA 2501 versions are as follows:

1. Ps (altitude version)
2. Qc (airspeed version)
3. Ps/Qc with a virtual Pt channel
4. Ps/Pt with a virtual Qc channel

An optional barometric sensor can be added to any version.

Communications

The manual user interface is through a 6.2 inch 640 x 240 pixel color LCD touch screen display. Navigation within the intuitive menu structure is easily learned. Recognizable icons, when touched, open screens for configuration and calibration. Communicating to a remote computer is achieved through Ethernet, RS-232 or optional IEEE-488 communications. Commands used for communication are the same as the previous version of Mensor avionics gauge models 2108 and 2109 or the WIKAL SCPI command set.

Specifications

Spec.	Data												
Pressure range guidelines	Ps Sensor: 0 ... 32 to 0 ... 35 in Hg A Pt Sensor: 0 ... 38 to 0 ... 122 in Hg A Qc Sensor: -1...36 to -1...103 in Hg G Specific ranges are selectable by the customer.												
Total uncertainty (pressure)	0.01% FS pressure over compensated temperature range, 15-45°C for 180 days												
Total uncertainty (altitude)	<table border="0"> <tr> <td><u>0...35 in Hg a</u></td> <td><u>0...32 in Hg a</u></td> </tr> <tr> <td>Sea level - ± 3 ft</td> <td>Sea level - ± 3 ft</td> </tr> <tr> <td>10,000 ft - ± 4 ft</td> <td>10,000 ft - ± 4 ft</td> </tr> <tr> <td>25,000 ft - ± 7 ft</td> <td>25,000 ft - ± 7 ft</td> </tr> <tr> <td>40,000 ft - ± 13 ft</td> <td>40,000 ft - ± 12 ft</td> </tr> <tr> <td>60,000 ft - ± 34 ft</td> <td>60,000 ft - ± 31 ft</td> </tr> </table>	<u>0...35 in Hg a</u>	<u>0...32 in Hg a</u>	Sea level - ± 3 ft	Sea level - ± 3 ft	10,000 ft - ± 4 ft	10,000 ft - ± 4 ft	25,000 ft - ± 7 ft	25,000 ft - ± 7 ft	40,000 ft - ± 13 ft	40,000 ft - ± 12 ft	60,000 ft - ± 34 ft	60,000 ft - ± 31 ft
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Total uncertainty (airspeed)	<table border="0"> <tr> <td><u>-1...36 in Hg d</u></td> <td><u>-1...103 in Hg d</u></td> </tr> <tr> <td>50 knots - ± 1.0</td> <td>100 knots - ± 1.0</td> </tr> <tr> <td>100 knots - ± 0.4</td> <td>200 knots - ± 0.5</td> </tr> <tr> <td>200 knots - ± 0.2</td> <td>500 knots - ± 0.2</td> </tr> <tr> <td>500 knots - ± 0.06</td> <td>1000 knots - ± 0.04</td> </tr> </table>	<u>-1...36 in Hg d</u>	<u>-1...103 in Hg d</u>	50 knots - ± 1.0	100 knots - ± 1.0	100 knots - ± 0.4	200 knots - ± 0.5	200 knots - ± 0.2	500 knots - ± 0.2	500 knots - ± 0.06	1000 knots - ± 0.04		
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Resolution	6 digits												
Over pressure limits	1.5 x pressure span												
Storage	-20... 70°C												
Warm-up	< 15 minute												
Reading rate	12.5 Hz												
Response time	80 mS												
Orientation	Negligible, can be removed with re-zeroing.												
Communications	Ethernet RS-232 Optional: IEEE-488												
Case size	3.375" high x 8.5" wide x 9" deep												
Weight	<5 lbs.												
Materials in contact with media	6000 series aluminum, 316 & 316L stainless steel, viton												
Media	Clean, dry, non-corrosive, noncombustible, non-oxidizing gases. Not suitable for oxygen use												

Power input	90 to 264 VAC, 47-63 Hz, 90VA max – optional international power plugs.
Pressure interfaces	7/16-20 SAE
Versions	<ol style="list-style-type: none"> 1. Ps (altitude version) 2. Qc (airspeed version) 3. Ps/Qc with a virtual Pt channel 4. Ps/Pt with a virtual Qc channel
Altitude units	Feet, miles, kilometers and meters
Airspeed units	Knots, miles/hr, meters/sec, kilometers/hr TAS and IAS airspeed
Rate units	/sec, /min, /hr, /3 hrs.
Pressure units	35 pressure units
Display	6.2 inch 640 x 240 pixel color LCD touch screen
CE	The CPA 2501 is compliant to: CE – Appropriate EN50081 and EN50082 emission and susceptibility standards.

Model CPA 2501 - Ordering Information

Specify:

Mode: Ps/Pt, Ps/Qc, Ps or Qc

Ps Range

Pt or Qc Range

Options: IEEE-488, barometer, international power plugs, rack mount kit



Total Uncertainty is the combined uncertainties of all components of a measurement at the approximate 95% confidence level (K=2). Total uncertainty includes the uncertainties of the following: Calibration standard, repeatability, pressure hysteresis, creep, linearity, and temperature effects over the compensated temperature range.

The Mensor calibration laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. Accreditation is by the American Association for Laboratory Accreditation (A2LA).

Since product innovation is a continuous process at Mensor, we reserve the right to change specifications without notice.

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