

ADTS 505

ADTS 505

Air Data Test Set



- High accuracy - RVSM compliant
- Fully automatic control
- Rugged flightline construction
- Wide ranging aircraft compatibility
- Integral pneumatic supplies
- Protection for aircraft instruments



ADTS 505

Air Data Test Set

Druck is the foremost supplier of Air Data Test Sets and Systems, with over 25 years of experience in the design and manufacture of advanced pressure measuring instruments and sensors.

Proven Design

The ADTS 505 is the latest in a series of reliable, compact and high accuracy Air Data Test Sets. The flightline design has evolved as a result of Druck's continuous research and development, customer feedback and experience gained from manufacturing thousands of automatic pressure controllers. This has enabled performance, ease of maintenance and operational simplicity to be optimised.

High Accuracy

Compliant with RVSM (Reduced Vertical Separation Minima) requirements, the ADTS 505 is a precision twin-channel Ps and Pt pressure control test set for the accurate calibration/verification of civil aircraft pitot statics. It utilises advanced micromachined piezo-resistive and resonant silicon sensors, developed by Druck specifically for high accuracy measurement applications. This technology provides excellent thermal and long term stability.

Suitable for use with a wide range of fixed or rotary wing civil aircraft, the ADTS 505 enables vital flight instrumentation such as Altimeters, Airspeed Indicators, Rate of Climb Indicators, Mach Meters and Air Data Computers to be quickly and accurately tested on the flightline.

User Friendly

The sophisticated yet user friendly display is fully programmable for a range of test requirements. It can be configured, with limits and preferred units of measurement, for individual aircraft types. The level of information displayed can be determined by the operator to suit the particular task at hand.

Advanced Functions

In addition to the standard pitot-static functions of the ADTS 505, there are many additional advanced features which include automatic go-to-ground, leak test mode and device under test protection limits amongst others. This enables the operator to undertake flightline testing accurately and efficiently, without compromising safety standards.

Cost Effective

Highly portable, quick and easy to use, the ADTS 505 is also designed for low maintenance, with a recommended 12 month recalibration interval. Operational productivity is optimised and aircraft downtime minimised.

FULLY AUTOMATIC CONTROL

The ADTS 505 has fully automatic control by means of the menu-driven high contrast, electroluminescent display and tactile membrane keypad. The desired altitude, airspeed or Rate of Climb can be input and the ADTS 505 will automatically generate and continuously maintain the desired value.

A choice of units is provided for Altitude, Airspeed, Rate of Climb, Engine Pressure Ratio and other related test functions. Control and measurement is available for these parameters and also Static, Pitot and Calibrated Airspeed.

Testing With Confidence

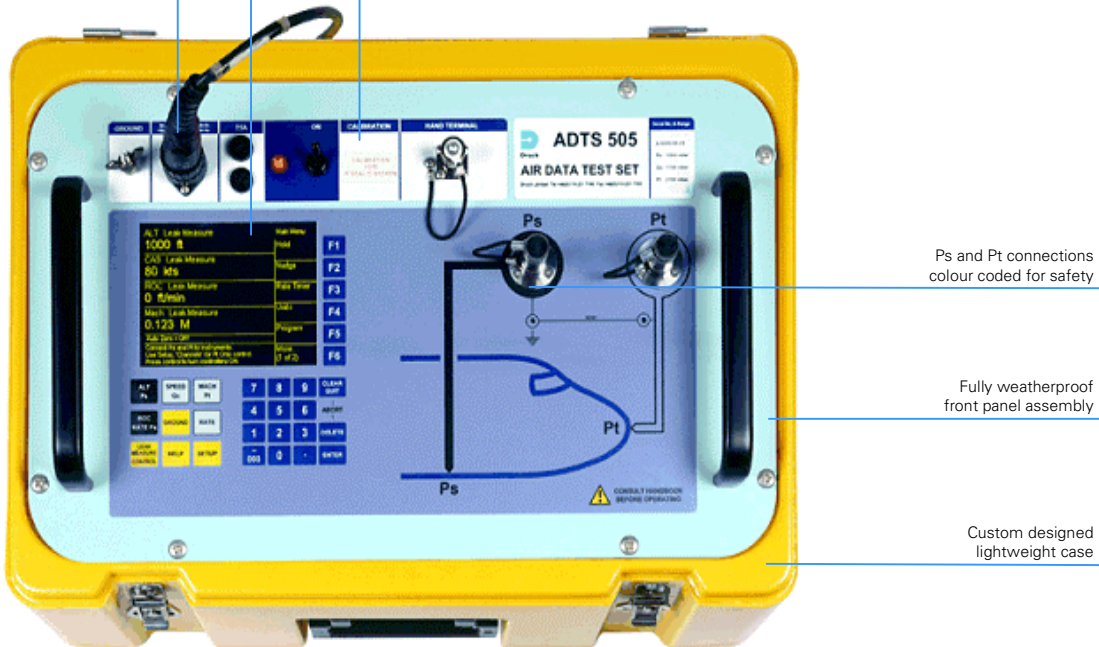
Protection for the aircraft instruments under test includes a power failure protection feature, which, in the event of an interruption to the electrical supply, locks the pneumatic system and allows safe restoration to ambient ground conditions.

The ADTS 505 will operate with leaking systems, which in practice can often occur. The required aim value is maintained, enabling the test to be completed.

Re-calibration control
(12 month interval recommended)

Menu-driven, high contrast
display with keypad control

Wide ranging
ac power capability





EASY FLIGHTLINE OPERATION

The self-contained ADTS 505 simplifies accurate and RVSM compliant pitot-static testing for a wide range of civil aircraft. Featuring a highly compact and lightweight yet rugged construction, it enables single-handed portability for convenient use on the flightline.

Integral Pneumatic Supplies

Matched pressure and vacuum pumps are included within the ABS case, which also provides storage for the pneumatic test hoses supplied with AN4 aircraft connections. The ADTS 505 is conveniently powered from any aircraft or national single phase supply, with no user switching required.

Weighing just 15Kg, the compact ADTS 505 offers a convenient yet high performance solution for responding quickly to pitot static and pressure related Air Data Test requirements on the flightline.

Standard Specification

MEASUREMENT SPECIFICATION

| PARAMETER | OPERATING RANGE | RESOLUTION | ACCURACY | REPEATABILITY |
|-----------------------------|--|----------------------------|---|---------------------------------|
| Altitude | -2,000 to +60,000ft ⁽¹⁾ | 1ft | 3ft at sea level ⁽²⁾ 7ft at 30,000 ft ⁽²⁾ 29ft at 60,000ft ⁽²⁾ | ±1ft ±2ft ±7ft |
| Static Sensor | 35 ⁽³⁾ to 1355 mbar abs (1 to 40 inHg) | 0.01 mbar (0.0001 inHg) | ±0.1 mbar (±0.003 inHg) | ±0.05 mbar ±0.0015 inHg |
| Airspeed | 20 to 650 knots ⁽⁴⁾ | 0.1 kts | ±0.5 kts at 50 kts ±0.07 kts at 550 kts | ±0.4 kts ±0.02 kts |
| Airspeed Sensor (Qc) | 0 to 2500 mbar diff (1 to 74 inHg) | 0.01 mbar 0.0001 inHg | ±0.035% F.S. | 0.05 mbar rising to 0.17mbar |
| Rate of Climb | 0 to 6000 ft/min ⁽⁵⁾ | 1ft/min | ±2% of value | ±0.5% (measurement) |
| Mach | 0.16 to 2.8 | 0.001 | Better than 0.005 | 0.001 rising to 0.005 |
| Engine Pressure Ratio (EPR) | 0.1 to 10 | 0.001 | Better than 0.005 | |

Notes

- 105,000 ft available (measure mode).
- Accuracy at ambient 5° to 35°C.
For 0° to +50°C **x 1.5**
- 35 mbar lowest calibration point. (Will measure and control below this value).
- Limits settable to prevent excessive mach. (Civil limit Mach 1).
- To 30,000 ft into 4 litres. Higher altitudes at lower rates available.

The ADTS 505 is housed in a rugged weatherproof case, complete with internal pneumatic pumps for pressure and vacuum generation. Automatic control is implemented by simple menu instruction and keypress at the front panel.

Scaling Factors

Altitude - ft, metres
 Airspeed - knots, km/hr, mph
 Rate of Climb - ft/min, m/min, m/s, hm/s
 Others - mbar, inHg, inH2O, mmHg, kPa, hPa, psi.

Rate Control/Indication

Roc Rate of Climb Rt Ps Rate of Static
 Rt Pt Rate of Pitot Rt Qc Rate of Pt - Ps
 Rt CAS Rate of calibrated airspeed
 Rt EPR Rate of engine pressure ratio

Overpressure

Negligible calibration change with up to 2 x FS overload applied.

Calibration Stability

Better than 0.005% (Ps) and 0.08% (Qc) FS per annum.

Recalibration

Simple keypad instruction. 12 month interval suggested. Use of primary standard pressure reference (e.g. Ruska Primary Pitot Static Tester model 2468) is recommended.

Display

Large area, 1/4 VGA, high contrast, electroluminescent display.
 96 mm x 73 mm, 320 x 240 pixels.

Response

2 readings per second display value update.

Power Supplies

90 - 132 Vac, 47 to -440 Hz, 180 - 265Vac, 47 - 66Hz auto-selection.
 Rating 200VA.

Power Failure Protection

System locks and manual let-down feature provided.

Self Test

Integral test routines and reporting for both electrical and pneumatic faults.

Temperature Range

Calibrated 5° to 35°C
 Operating 0° to 50°C
 Storage -20° to 70°C

Sealing

Weatherproof in operating mode (lid removed).

Humidity

0 - 100% non-condensing. "Tropicalised" specification.

Shock/Vibration

Designed to meet MIL-T-28800 Class 2.

Conformity

EN61010, EN61326. CE marked.

Physical

Weight 15kg (33lb) nominal.
 Dimensions (including lid): 265mm x 520mm x 355 mm
 (10.4" x 20.5" x 14").

Case

ABS moulded case with removable lid and storage for accessories.

Pneumatic Connections

AN4 for Ps and Pt, both colour coded.
 Supplied with mating 2m (6' approx) long flexible hoses with AN4 fittings at one end.

Pneumatic Supplies

Integral pressure and vacuum pumps capable of generating the following supply rates:-

6,000 ft/min into a 4 litre volume at 30,000 ft
 300 knots/min into 2 litre volume at 650 knots
 Water/moisture content is vented automatically.

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ACCESSORIES

ac power lead - 2m length (6' approx). Ps and Pt hoses - 2m lengths (6' approx.). Operators manual and calibration certificate also supplied as standard.

CALIBRATION STANDARDS

Instruments manufactured by Druck are calibrated against precision calibration equipment traceable to international standards.

ORDERING INFORMATION

Please state the following:-

1. ADTS 505
2. Any special requirements

RELATED PRODUCTS

With a focus on pressure measurement technology, Druck has developed a comprehensive range of instruments covering all aircraft pitot static requirements, ranging from single channel leak testers through to fully automated and remotely operated Air Data Test Systems.

In addition, the equipment available from Ruska, a Druck Group company, provides both laboratory air data test systems and world-class primary standards used for routine calibration and certification of high accuracy instruments such as the ADTS series.

Portable Aeronautical Leak Tester

For aircraft pitot-static leak testing the DPI 610 Aeronautical is a single channel, cost effective portable instrument.

- Ranges to 600 knots/50,000 feet
- Accuracy to 0.7 knots/14 feet
- Integral pneumatic handpump
- Task oriented display



Hand-held Barometer and Leak Tester

The precision DPI 740 barometer is ideal for barometric/QNH/QFE measurement and the DPI 705 for pressure/leak testing.

- Gauge, absolute or differential
- Barometric accuracy ± 0.15 mbar
- Multiple/aeronautical scales
- RS 232 communications (DPI 740)



ATE Air Data Test System

The ADTS 401 and ADTS 405 are fully programmable twin channel Ps and Pt pressure control systems, ideal for ATE.

- RVSM compliant accuracy
- Civil and military specifications
- Automated operation
- Emulation of other ADTS



Flightline Test Set with remote control

Military approved, the ADTS 405F Flightline Air Data Test System is suitable for use with all types of aircraft. It features a hand-held programmable remote control unit for cockpit based operation.

- High accuracy, RVSM compatible
- Civil and military specifications
- Integral pneumatic supplies
- Single operator, ground or cockpit



Calibrators and Pressure Sensors

Druck offer a complete range of precision calibrators for field, workshop or laboratory use. These include primary and secondary pressure standards from Druck companies, Ruska and Pressurements. Druck also manufacture a wide range of pressure transducers and transmitters for ground flight test and flight qualified applications.

Some examples are shown. Further information and datasheets are available on request.



Continuing development sometimes necessitates specification changes without notice.