



ADTS 405 MkII upgrade

Druck air data test system

A cost-effective upgrade solution for your ADTS 405 MkI

Military authorities throughout the world have adopted the ADTS 405F variant as standard equipment over a number of years. The MkI version is obsolete and due to parts availability is no longer supported. The ADTS 405 MkII upgrade kit provides a cost-effective solution to remove the obsolescence, improve the specification and provide an extension to the operational life of MkI units.

ADTS 405F – Transportable flight line unit

This is a self contained portable unit with integral pressure/vacuum supplies, housed in a single military standard enclosure. It is ideal for calibration and simulation on the flightline.

A kit is available to upgrade the flightline unit which includes the following:

- New front panel assembly including, manifold, valves, control sensors, TERPS main transducers, updated LDK and display, power switch, hand terminal connector and Mimic panel
- New controller cards, motherboard and communication card
- New pump motor assembly
- New hand terminal
- New power supplies

ADTS 405 – Rack mounted unit (RS)

This is a compact, 50 cm (19 in) rack mounting unit for laboratory or workshop use. It is ideal for integration with ATE systems, or simply for use as a convenient bench top tool. Pneumatic connections are available via either the front or rear panel to suit specific applications. An optional matched pressure/vacuum supply unit (PV103R) is available as a separate rack module.

A kit is available to upgrade the rack mounted unit which includes the same as the flightline unit but the hand-terminal is optional.



Features and benefits of upgrading MkI to Mk II

- Improved specification – upgraded units will match the specification of MkII flightline for EMC, shock, vibration, corrosion and expanded temperature range
- Improved accuracy compared to the MkI version
- Extended operational lifetime of existing assets
- Cost-effective solution to purchasing a new unit
- Provides a direct 'fit, form and function' replacement
- Same look and feel as MkI unit so no additional cost of re-writing operations manuals or re-training personnel to operate
- Fully compatible with existing auxiliary equipment
- Renewed warranty

Options

Kit	Unit number
 <p>Case - green</p>	AS405-61-1892M0
 <p>Case - white</p>	AS405-63-1892M0
 <p>Case - yellow</p>	AS405-65-1892M0
Pneumatic kit	AS405-91-1893M0
Regulator	AS405-59-1892M1
Filter	AS405-96-1893M0
Hand terminal (included in flightline kit)	AS405-111-1728-M0

ADTS 405 MkII upgrade specifications*

Parameter	Operating range	Resolution	Accuracy
Altitude	-914 to 24,384 m ⁽²⁾ (-3,000 to 80,000 ft)	0.3 m (1 ft)	0.9 m at sea level ⁽¹⁾ (3 ft at sea level) 2.1 m at 9144 m ⁽¹⁾ (7 ft at 30,000 ft) 8.8 m at 18,288 m ⁽¹⁾ (29 ft at 60,000 ft)
Static sensor	35 ⁽³⁾ to 1355 mbar absolute (1 to 40 in Hg)	0.01 mbar ⁽¹⁾ (0.0003 in Hg)	±0.1 mbar (±0.003 inHg)
Airspeed	10 to 850 knots ⁽⁴⁾ or 10 to 1,000 knots	0.1 kts 0.1 kts	±0.5 kts at 50 kts ±0.07 kts at 550 kts ±0.05 kts at 1,000 kts
Pitot sensor	35 ⁽³⁾ to 2700 mbar absolute (1 to 80 in Hg) 35 ⁽³⁾ to 3500 mbar absolute (1 to 103 in Hg)	0.01 mbar (0.0003 in Hg) 0.01 mbar (0.0003 in Hg)	±0.012% RDG +0.007% FS
Rate of climb	0 to 6000 ft/min ⁽³⁾	1 ft/min	±1% of value
Mach	0.6 to 10.000 ⁽⁴⁾	0.001	Better than 0.005
Engine Pressure Ratio (EPR)	0.1 to 10	0.001	Better than 0.005

1. Accuracy at ambient 5°C to 35°C (41°F to 95°F) for -10° to +50°C (14° to 122°F) x 1.5 for ±2°C (±1.1°F) lab use x 0.5

2. 32,004 m (105,000 ft) available (control with suitable vacuum pump).

3. 30,480 m (100,000 ft/min) rates selectable—limit protected for safety—volume dependent

4. Limits settable to prevent excessive mach. (Civil limit Mach 1).

*for e-drawing controlled versions specification may differ

Rack mounted ADTS 405

The ADTS 405RS is a 50 cm (19 in) rack mounting module housing the main control system with local front panel display and keypad. The remote hand terminal is optional for this model and a matched separate pressure/vacuum supply unit is available – please refer to PV 103R Datasheet.

Scaling factors

- Altitude: ft, meters
- Airspeed: knots, km/hr, mph
- Pressure: mbar, inHg, inH2O (4°C, 20°C, 60°F), mm Hg, kPa, hPa, psi
- Airspeed: CAS (calibrated) : TAS (true – ability to enter temperature)

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 1.25 x FS overload applied.

Control stability

Better than 40 ppm.

Recalibration

Simple keypad instruction. 12 month interval suggested. Use of primary standard pressure reference is recommended. Recalibration can be done on nitrogen or air (See media compatibility).



ADTS 405 Rack upgrade specifications

Display

VFD Display , 123 mm x 42 mm (4.8 in x 1.6 in) window with 4 lines of 20 characters 8 mm (0.3 in) high. Optional hand terminal display window 73 mm x 24 mm (2.87 in x 0.95 in).

Response

- Two readings per second display value update
- Five readings per second remote interface updates

Power supplies

- 100/120/230 Vac, 50/60 Hz
- 115 Vac 400 Hz
- Power consumption upto 400VA

Power failure protection

In the event of a power interruption, the output ports will be vented to ambient conditions safely. On power reconnection, the ADTS405 safely reconnects to the aircraft system in measure mode.

Self test

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

Digital interfaces

IEEE488.2 optional – Earlier versions also available.

Temperature range

- Operating: -20°C to 60°C (-4°F to 131°F)
- Storage: -51°C to 71°C (-60°F to 160°F)

Sealing

ADTS 405 MkII front panel is rainproof.

Humidity

0 to 100% condensing. “Tropicalised” pcb’s to MIL-T-28800

Shock/vibration

- MIL-PRF-28800 Class 2

Safety performance

- EN61010 for electrical and mechanical safety

Electromagnetic compatibility

- EN 61326-1

Physical

- 13 kg (29 lb) nominal
- Case dimensions: 485 mm x 270 mm x 305 mm (19 in x 10.5 in x 12 in)

Pneumatic connections

Front panel mounted fittings with blanking caps

- Static: AN-6 37° flare • Pitot: AN-4 37° flare

Fitted with replaceable filter

- Vacuum (AN6) and pressure (AN4) supply fittings on rear panel
- Rear mounted Static AN-6 and Pitot AN-4 (Option) Pneumatic supplies

For normal use with source pressure at 25% above specified pressure range. Compatibility with other dry, non-corrosive gases can be provided. Please refer to Druck.

Media compatibility

Non-condensing dry gases compatible with 316L Stainless Steel, Silicon, Silicon dioxide, Fluorosilicon RV adhesive and glass.

Flight line ADTS 405F

Transportable military cased version incorporating the ADTS 405 with built-in pressure/vacuum supplies. Control is via local keypad/display or standard remote control terminal.

Power supply

- 100/120/230 Vac, 50/60 Hz
- 115 Vac 400 Hz
- Power consumption upto 500VA

Digital interfaces

- IEEE488 Optional – Earlier versions also available
- Ethernet and USB options available shortly

Temperature

Flight line (FS/LS)

- Operating: -20°C to 55°C (-4°F to 131°F)
- Storage: -51°C to 71°C (-60°F to 160°F)

Extended (FX/LX)

- Operating: -40°C to 55°C (-40°F to 131°F)
- Storage: -51°C to 71°C (-60°F to 160°F)

Humidity

0 to 90% condensing. "Tropicalised" pcb's to MIL-T-28800

Shock/vibration

- MIL-PRF-28800 Class 2

Sealing

Weatherproof in operating mode (lid removed).

Electromagnetic compatibility

To MIL-STD-461F for Extended case (FX and LX Option) and EN61326-1

Lid Line Switching unit (LS and LX Option)

Lid line switching unit offers customers the option of two five-way manifolds for multiple output ports, consists of 5 Static AN6 and 5 Pitot AN4 manually switched ports.

Safety performance

EN61010 for electrical and mechanical safety.

Physical

- 35 kg (77 lb)
- 762 mm x 320 mm x 480 mm (30 in x 13 in x 19 in) nominal. Wheels supplied for ease of transport

Pressure/vacuum unit

Integral pneumatic supplies. Auxiliary connections for external supplies to boost or drive other equipment. Supply for vacuum hold down static adaptors also provided.

Related products



Pressure/vacuum supply unit

For use with the ADTS 405, the PV103R is a 19" rack mounting module for ATE systems and features low maintenance dry pumps.

Accessories

Additional power cable and output hose styles are available, please inquire. Operators manual, safety manual and calibration certificate also supplied as standard.

Calibration standards

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

ADTS 405 MkII upgrade specifications

Supporting services

Druck provides services to enhance, support and complement the Aviation GSE range. Our highly trained staff can support you, no matter where you are in the world.

Further details can be found in www.bakerhughesds.com/druck/air-data-test-sets Training available on request.

Nationally accredited calibration certificates

New product is supplied with factory calibration certificates with measurements traceable back to international standards. For applications where initial nationally accredited calibration certificates are required or periodic re-calibration is desired, Druck Sensing can provide the solution.

Multi-year calibration and repair services agreements

Available for indicators and instruments, multi-year service agreements increase cost predictability by providing fixed rates for extended periods. With larger scope undertakings customized plans can be adapted to your needs.

Maintenance

Once upgraded, should your equipment need maintenance our global repair facilities are happy to serve. Work is conducted by trained approved technicians, using controlled original equipment parts and procedures so restoring the product to design condition. This is particularly important with Intrinsically Safe products operated in hazardous environments and aviation ground support equipment.